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MILWAUKEE, DECEMBER, 1884.

{Terms: \$1.00 a Year in Advance.  
Single Copies, 10 Cents. }

# ONE OF THE KIND OF MILLS WE BUILD.

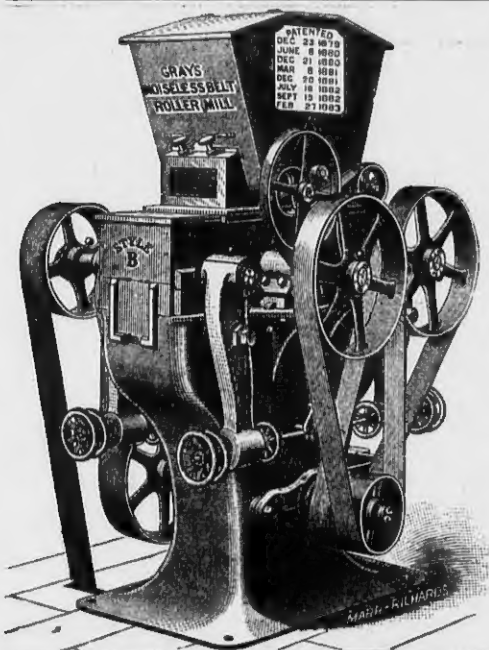
**THE JOHN T. NOYE MFG. CO., BUFFALO, N. Y.**

*Laury's, Pa., September 1, 1884.*

**GENTLEMEN:**---Since putting in the rolls made by you, and changing the bolting arrangements as advised, I have been running night and day, turning out over two hundred barrels of flour per twenty-four hours, with a yield surprisingly under  $4\frac{30}{60}$ . I doubt if our flour can be beaten in this country. This statement is pretty strong, but can be backed up. I can clean the middlings so that there is not a particle of flour left. Millers coming here to see our offal, do not believe but I have some secret way of manipulating the material. It is all square milling on superior rolls and with a superior system. I could not fill my orders if I had double the capacity.

Yours truly,

**J. R. SCHALL.**



## GRAY'S NOISELESS BELT ROLLER MILLS.

### STYLE B

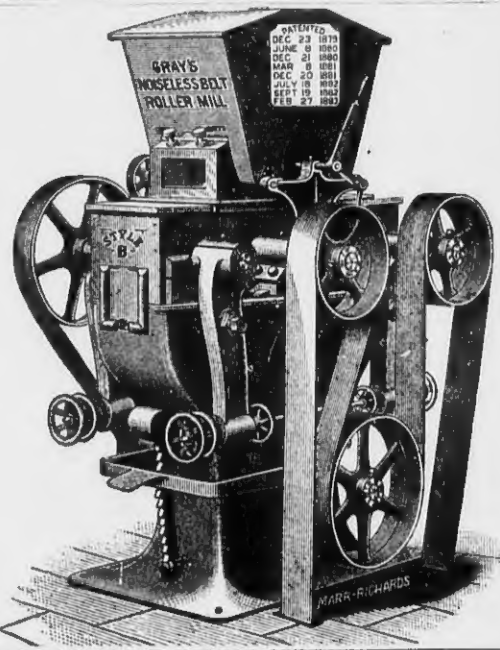
FOR SMALL MILLS.

Send for Circulars and Prices.

**E. P. ALLIS & CO.,**

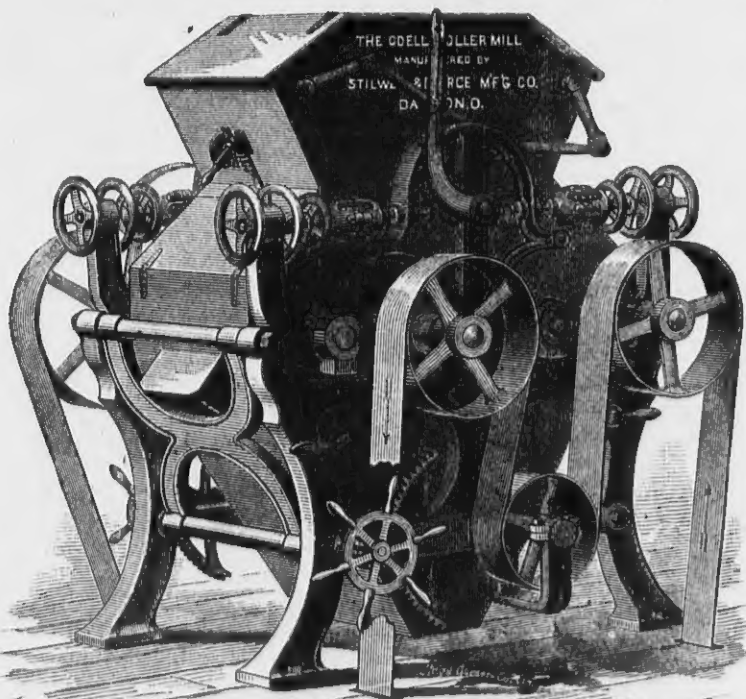
*Sole Manufacturers.*

Reliance Works, Milwaukee, Wis.



## ODELL'S ROLLER MILL SYSTEM

Is now in successful operation in a large number of mills, both large and small, on hard and soft wheat, and is meeting with Unparalleled Success. All the mills now running on this system are doing very fine and close work, and we are in receipt of the most flattering letters from millers. References and letters of introduction to parties using the Odell Rolls and System, will be furnished on application to all who desire to investigate.



## ODELL'S ROLLER MILL,

Invented and Patented by **U. H. ODELL**, the builder of several of the largest and best Gradual Reduction Flour Mills in the country.

### AN ESTABLISHED SUCCESS

WE INVITE PARTICULAR ATTENTION TO THE FOLLOWING

#### → \*POINTS OF SUPERIORITY\* ←

possessed by the Odell Roller Mill over all competitors, all of which are broadly covered by patents, and cannot be used on any other machine.

1. It is driven entirely with belts, which are so arranged as to be equivalent to giving each of the four rolls a separate driving-belt from the power shaft, thus obtaining a *positive differential motion* which cannot be had with short belts.

2. It is the only Roller Mill in market which can *instantly be stopped without throwing off the driving-belt*, or that has adequate tightener devices for taking up the stretch of the driving-belts.

3. It is the only Roller Mill in which *one movement of a hand-lever spreads the rolls apart and shuts off the feed at the same time*. The reverse movement of this lever brings the rolls back again exactly into working position and *at the same time turns on the feed*.

4. It is the only Roller Mill in which the movable roll-bearings may be adjusted to and from the stationary roll-bearings *without disturbing the tension-spring*.

5. Our Corrugation is a decided advance over all others. It produces a more even granulation, *more middlings of uniform shape and size, and cleans the bran better*.

**We use none but the BEST ANSONIA ROLLS.**

OUR CORRUGATION DIFFERS FROM ALL OTHERS, AND PRODUCES

**LESS BREAK FLOUR and MIDDINGS of BETTER QUALITY.**

Mill owners adopting our Roller Mills will have the benefit of Mr. Odell's advice, and long experience arranging mills. Can furnish machines on Short Notice. For further information, apply in person or by letter to the sole manufacturers,

**STILWELL & BIERCE MANUFACTURING CO.,**

Agents for Du Four's Bolting Cloth.

(Please mention this paper when you write to us.)

**DAYTON, OHIO, U. S. A.**



# To SETTLE A DISPUTED QUESTION!

Owing to the fact that we are the only manufacturers of Roller Mills in this country who are authorized to build and sell machines containing Porcelain Rolls under the Wegmann patents, our business competitors have from motives of policy, been forced to oppose the introduction and use of the justly

== CELEBRATED ==

## Wegmann Porcelain Roller

== MILLS! ==

of which we are the exclusive licensees and sole manufacturers in America. As many millers have not yet given the Porcelain Rolls a practical trial, but have formed their opinions of their merits wholly from hearsay evidence, we desire to give millers generally an ample opportunity to determine for themselves, from a thorough trial in their own mills, the merits or demerits of Porcelain Rolls, and, therefore, make the following

— **OFFER!** —

We will sell any miller who is now grinding purified middlings on millstones, smooth iron rolls or scratched rolls, one of our

### Gray's Noiseless Belt Drive Porcelain Roller Mills,

of suitable capacity, at our regular prices, and if the result of an impartial and careful trial does not establish the fact that the Porcelain Rolls are superior to either millstones, smooth iron or scratch rolls, for the purpose for which we recommend them, we will replace the Porcelain Rolls with either smooth or scratched iron rolls, allowing the difference in price; or the entire machine may be returned to us at our expense. Where millers desire, we will send a competent miller to instruct them in the proper handling of the Porcelain Rolls without expense to them. Our offer is made with the purpose of placing it in the power of every miller to satisfy himself that he is using the best machine for flouring purified middlings. Millers desiring to avail themselves of this offer should send sample of stock they wish to reduce, stating capacity required, to

**EDW. P. ALLIS & CO.,**

Reliance Works, Milwaukee, Wis.

[Please mention the UNITED STATES MILLER when you write to us.]



# The United States MILLER

Published by  
E. HARRISON CRAWKER. {VOL. 18. NO. 2.}

MILWAUKEE, DECEMBER, 1884.

Terms: \$1.00 a Year in Advance.  
Single Copies 10 Cents.

## MESSRS. BLAIR & AULD'S MILL, ATCHISON, KS.

On this page we have the pleasure of showing an illustration of the new full roller mill owned by Messrs. Blair & Auld, and built by THE NORDYKE & MARMON CO., of Indianapolis, Ind. The mill is highly creditable to the firm who built it.

The building is put up with good design, and is ornamental in its finish. It is composed of heavy brick walls, trimmed with stone, and stands next to the Atchison Union Depot. The offices, packing room and elevator adjoin the main building having been erected especially for the purpose. The engine room is separate from the mill, and contains a handsome 100-horse power automatic engine, which, it is said, will use only three pounds of coal per horse-power per hour.

The grinding floor contains thirteen double Nordyke & Marmon roller mills, arranged in two lines, and driven by two line shafts. Five flour packers are located along the wall. The mill makes seven breaks on wheat, and the bran from the tail of the seventh break scalper is sent to a bran duster, and the flour thus obtained is dressed on a centrifugal. The upper floors contain ten scalping reels, fourteen flouring reels, seven middlings purifiers, provided with improved dust collectors, also four large centrifugals, and two bran dusters. The capacity of the mill ranges from 200 to 250 barrels per day. The total cost, including building, will be about \$40,000.

How long the depression in business is to continue we will not attempt to define, but we think that want of confidence is its prevailing cause at present. Fears of the future have no small share in producing the very effect created by them, and although they do not cause depression, unreasonably prevent recovery. For a year and a half values have been gradually settling, and the buying public has been stinting its purchases and hoarding its resources, while many producers have curtailed production, so that while for most lines there is evident pressing want, there is such a lack of money that transactions can not be made, and the fearfulness of the public in the matter of credits magnifies that want a hundred fold.—*Grain.*

### POSTAL FIGURES.

The annual report of A. D. Hazen, third assistant postmaster general, shows that the total number of postage stamps, stamped envelopes and postal cards issued during the year was 2,168,130,396. Total value \$41,515,877. The decrease in value of issues of ordinary postage stamps was \$1,229,735; total decrease in value of all issued, including postal cards, stamped envelopes, postage-due stamps, and wrappers, \$1,394,441.

The weight of second-class matter during the year, not including the free circulation within the county of publication, was 94,479,607 pounds, the postage on which was \$1,889,592; an increase of \$184,414 over the previous year. The whole number of pieces of undelivered mail matter received in the dead-letter office, including 278,648 pieces on hand, was 4,843,099; of this number, 314,719 were misdirected. There were destroyed

2,539,477 letters and 17,513 parcels of fruit, cake, etc. Among the letters opened 13,062 contained money, and 19,014 drafts, etc. Of letters sent to foreign countries, 210,436 were returned as undelivered. The total number of letters and parcels registered during the year, was 11,246,545, and the amount of registry fees collected, \$957,059; an increase of \$30,509. The loss on registered letters during the year amounted to one out of every 21,795 pieces of mail. This is the smallest average of losses since the organization of the registry system.

**GRAIN AND GRANARIES.**—The plethora of grain in the markets of the world has recently brought about two novel agitations, one in France and one in Russia. The new Minister of Commerce in France is an advanced free trader, while the Minister of Agriculture is a very strong protectionist. Business in France, as everywhere else in the world, is very bad, and the ignorant peasantry and artisans are trying to get the government to impose an import tax on grain and produce. The government, under the guidance of M. Meline, the protectionist Minister of Agriculture, has already introduced a bill in-

effect on prices. Late advices from Madras, Bengal and Mysore, in India, report favorable weather. The Argentine Republic promises 6,000,000 bushels of wheat for export. On the Continent of Europe the weather has favored the planting of winter wheat, and breadstuffs have been dull and prices as low as in previous weeks. A London circular states that "flour continues to be offered at very low prices, both for home made and foreign, and is now cheaper in proportion than wheat; yet no one seems to have confidence in speculative operations, seeing how the United States can pour out the manufactured article with such a large visible supply of wheat in hand there."

A RECENT article in *Invention*, a London paper, discusses safety arrangements for factories. It says: "We have personally visited many factories, large and small, and can ourselves testify to the fact that even now a large amount of very dangerous machinery is either quite unprotected or fenced in a very imperfect manner. In one instance—and that, too, in the heart of London—we saw the end of a small shaft revolving at a high speed allowed to project some

weight. There is a wide-spread feeling that, owing to the low price of wheat, the profits of bakers are unusually high. It was urged in behalf of fifteen bakers who had been convicted and fined at Bath, either for selling bread short in weight or delivering bread from a cart without proper scales and weights, that the loss of the purchaser was not over one-sixteenth of a penny where the pound of bread was short by an ounce. But it was justly contended that while this loss to a purchaser was trivial, it was important to the baker, inasmuch as it represented the gain of a penny upon every four pound loaves that were sold.—*New York Commercial Advertiser.*

The Supreme Court of Georgia has decided that dealing in "futures" is illegal, and such contracts are void. Justice Blandford delivered the decision, and indulged in the following remarkable language: "Faro, brag and poker are tame, gentle, submissive animals compared to this monster, future speculation, which is a ferocious beast allowed to stalk about in open mid-day, with gilded signs and flaming advertisements, to allure unhappy victims to its embrace of death and destruction." It really looks as if the Judge had been a victim; but all the same there is plenty of truth in what he says to show that it should be suppressed, the same as "brag, poker, and faro."

**BELT CONTACT.** The weight of authority is so strongly in favor of running leather belts with the grain side to the pulley that the question ought to be regarded as settled beyond the need of further discussion. The relative value of a belt with grain side as compared with flesh side contact has been determined by experiment with substantial accuracy. It is a fraction more than one-third greater, or say 34 per cent., with the former than with the latter application. The main reason ordinarily assigned is the advantage derived from the smoother surface, closer contact and better adhesion. But there is another ground for giving the grain side the preference which is of equal practical importance. The reason for placing a belt with the smooth side on the pulley is that the flesh side is the strongest against rupture, having more than twice the strength of the smooth side, and the belt is thus less subject to wear and less liable to crack on the smooth side. It is better to crimp the grain side than to stretch it, as is the case when it is used outside. If a pulley is covered with leather, grain side out, so that two leather surfaces come in contact, grain against grain, there will be more adhesion, which will be more increased by using castor oil as a dressing.—*Exchange.*

The total amount of our exports of breadstuffs to France for the last fiscal year, the official returns of which have been published (1883) were as follows: Corn, 1,717,903 bushels—value, \$1,077,000; Indian cornmeal, barrels, 127—value, \$495; wheat, bushels, 15,096,712—value, \$17,178,486; wheat flour, barrels, 63,223—value, \$355,672. This is a comparatively small percentage of the total exports of our exports to all countries, which in some years were of the value of \$208,040,850.

**A SPECIFIC FOR HICCUGH.**—Dr. Henry Tucker recommends, in the *Southern Medical Record*, the use of the following very simple remedy in the treatment of hiccough, namely: Moist granulated sugar with good vinegar. Of this give to an infant from a few grains to a teaspoonful. The effect, he says, is almost instantaneous, and the dose seldom needs to be repeated. He has used it for all ages—from infants of a few months old to those on the down-hill side of life, and has never known it to fail. The remedy is certainly a very simple one, and although no theory is advanced to account for its wonderful action, it merits trial.—*Therapeutic Gazette.*

**RAIDING THE BAKERS.**—The police in parts of England are just now making raids upon bakers and taking legal proceedings in cases where bread has been sold deficient in



BLAIR & AULD'S MILL, ATCHISON, KS.

creasing the duties on oxen from fifteen francs to twenty-five francs; on sheep from two francs to three francs, and on pigs from three francs to six francs; but the farmers are by no means satisfied, and want much higher duties on imported cattle and a tax of 2f. 50c. per cwt. on wheat and 4f. 50c. per cwt. on flour. The same influences are at work in Russia, although in a different way. The supply of grain is so large there and the demand so limited that the farmers cannot dispose of it at anything like cost price, and the party of the *Moscow Gazette* goes so far as to recommend that the government should advance money to the municipalities, allowing them to establish large granaries, where the peasants might store their grain and receive a loan upon it until such a time as an advance in price would enable them to sell at a profit. One moment's reflection ought to satisfy the most unreasoning mind that such a proceeding would only tend to raise prices artificially, and thus check exportation. But it is nothing surprising that such a thing should not be properly understood in Moscow, when all the Chicago grain cornerers and bank directors do not seem to get it through their heads. Abroad large accumulations of wheat in England, coupled with the heavy receipts here, have had a very depressing



## UNITED STATES MILLER.

PUBLISHED MONTHLY.

OFFICE NO. 124 GRAND AVENUE, MILWAUKEE.  
Subscription Price .....\$1 per year in advance.  
Foreign Subscription .....\$1.50 per year in advance.

MILWAUKEE, DECEMBER, 1884.

## ANNOUNCEMENT.

WM. DUNHAM, Editor of "The Miller," 69 Mark Lane, and HENRY F. GILLIG &amp; Co., 449 Strand, London, England, are authorized to receive subscriptions for the UNITED STATES MILLER.

We send out monthly a large number of sample copies of the UNITED STATES MILLER to millers who are not subscribers. We wish them to consider the receipt of a sample copy as a cordial invitation to them to become regular subscribers. Send us One Dollar in money or stamps, and we will send THE UNITED STATES MILLER to you for one year.

The United States Consuls in various parts of the world who receive this paper, will please oblige the publishers and manufacturers advertising therein, by placing it in their offices, where it can be seen by those parties seeking such information as it may contain. We shall be highly gratified to receive communications for publication from Consuls or Consular Agents everywhere, and we believe that such letters will be read with interest, and will be highly appreciated.

## TO ADVERTISERS.

Milwaukee Wis., October, 1884.

To Those Interested in the Flouring Trade:

THE UNITED STATES MILLER is now in its ninth year, and is a thoroughly established and much valued trade paper. It has a large regular list of domestic and foreign subscribers. It is sent monthly to United States Consuls in foreign countries, to be filed in their offices for inspection by visitors. It is on file with the Secretaries of American and European Boards of Trade for inspection of members. Aside from the above, thousands of SAMPLE COPIES are sent out every month to flour mill owners who are not subscribers, for the purpose of inducing them to become regular subscribers, and for the benefit of those advertising in our Columns. Every copy is mailed in a separate wrapper. Our editions have not been at any time since January, 1882, less than 5,000 copies each, and are frequently in excess of that (see affidavit below). We honestly believe that the advertising columns of the UNITED STATES MILLER will bring you greater returns in proportion to the amount of money invested than any other milling paper published. Advertisers that have tried our paper for even a few months have invariably expressed themselves well satisfied with the results. Our advertising rates are reasonable. Send for estimates, stating space needed. The subscription price of the paper with premium is One Dollar per year. Sample copy sent free when requested. We respectfully invite you to favor us with your patronage. We shall be pleased to receive copies of your Catalogues, and also trades items for publication free of charge. Trusting that we may soon be favored with your orders, we are,

Yours truly,

UNITED STATES MILLER.  
E. HARRISON CAWKER, Publisher.

"MILL FOR SALE" ads. Inserted once for \$2.00, or three times for \$5.00, cash with order.  
"SITUATION WANTED" ads. 50 cents each insertion, cash with order.

## Publisher's Affidavit Concerning Circulation.

STATE OF WISCONSIN, } ss:  
MILWAUKEE COUNTY, }

E. HARRISON CAWKER, editor and publisher of the United States Miller, a paper published in the interest of the FLOURING INDUSTRY at No. 124 Grand Avenue, in the City of Milwaukee and State of Wisconsin, being duly sworn, deposes and says that the circulation of said paper has at no time since January, 1882, been less than FIVE THOUSAND (5,000) copies per month; further, that it is his intention that it shall not in the future be less than FIVE THOUSAND copies each and every month; further, that he has paid for regular newspaper postage at the rate of two (2) cents per pound on domestic and Canadian newspaper mail for the last eight (8) months, including May, 1884, the sum of \$160.90, showing that in that time 8,045 pounds of United States Millers have been mailed; further, that the foregoing postage paid does not include postage paid on city and foreign papers (Canada excepted). [Signed]

E. HARRISON CAWKER,  
Publisher United States Miller.

Subscribed and sworn to before me, this 30th day of June, 1884.

B. K. MILLER, Jr., Notary Public,  
Milwaukee County, Wis.

Amount of postage paid for June, \$18.26; July \$17.02; August, \$17.58; September, \$17.00. Affidavits will be sent to advertisers from time to time. The original post office receipts can be seen at any time in this office.

## MILWAUKEE AMUSEMENTS.

GRAND OPERA HOUSE.—Performances every evening, and Wednesday, Saturday and Sunday matinees.

ACADEMY OF MUSIC.—Performances every evening, Wednesday, Saturday and Sunday matinees.

SHENSBY'S VARIETY THEATRE.—Performances every evening, and Thursday and Sunday matinees.

DIME MUSEUM.—Performances every hour from 1 P. M. to 10 P. M., every day. Freaks, curiosities and excellent stage performances.

That valuable book "Moore's Universal Assistant and Complete Mechanic" and a copy of the UNITED STATES MILLER for one year will be sent to any address in America for \$2.75. Order now.

COMMISSIONER of Patents Benjamin Butterworth, submits the following annual report: Number of applications for patents received, 35,204; applications for design of patents received, 1,322; applications for re-issue of patents received, 244; applications for the registration of trade marks, 1,077; applications for registration of labels, 975; total 38,822. Caveats filed, 2,672; patents granted, including reissues and designs, 22,822; trade marks, registered, 903; labels registered, 833; total, 24,558. Patents withheld for nonpayment of final fees, 24,613; patents expired, 10,230; receipts from all sources, \$1,145,433, an increase of \$49,548 over the preceding year; expenditures (excluding printing) \$901,413; surplus, \$244,019. The increase over the number of applications for patents, design, etc., received during the preceding year was 3,088. The number of applications awaiting action by the office June 30, 1884, was 9,186, an increase of 5,087 over the accumulated applications at the end of the preceding year.

A copy of Ropp's Calculator and the UNITED STATES MILLER will be sent to any address for one year for \$1.00.

## ITEMS FROM OUR EXCHANGES.

Unless the tendency of milling is very deceptive, it is only a question of time when the "small fish" will be swallowed by the larger ones. The difficulty now experienced by small millers in making both ends meet, may, possibly, be attributed to close times; yet it can not be denied that the tendency of milling is decidedly toward large mills and the centralization and combination of milling capital. The outlook for small millers is not at all promising.—St. Louis Miller.

THE recent and general agitation in England regarding the high price of bread is beginning to have effect. Already in many country districts the price has been reduced, while in others the loaves have been enlarged. That this change will work its way into London is highly probable. The investigations made by the press of the baking business have led to fresh developments which shock consumers and are likely to result in official action. Many of the bakeries are found to be in old, musty and unventilated buildings, reeking with filth and so conducted as to make it certain that the product is unfit for human consumption. Such an investigation here would disclose a similar shameful condition in the bakeries of many American cities. We have no laws by which these things can be regulated, but legislators should see too it at once that the food of the purchasing public is made in clean establishments, by clean-handed employees, in clean ovens and other utensils. Such legislation is not class legislation. It affects the health of too many people to be so classed. The man who sells mouldy, sour, or dirty bread is as much amenable to the law as the man who sells strychnine for quinine, and should be held equally responsible.—Northwestern Miller.

## ALLEGED OVERPRODUCTION.

The persistence with which those who write and talk of economic subjects cling to the idea that we are at present suffering from "overproduction" is at least surprising. No elementary truth in political economy is better established, it seems to us, than that the end and aim of human effort is abundance. That the point of abundance has not been reached must be evident to every one who studies social conditions even superficially. We have in warehouse and store a considerable accumulation of useful products which the owners cannot presently sell to advantage. So much may be admitted. But if the bare necessities of the community were met, not only would our surplus disappear, but the utmost possible production could not overtake the demand for so long a time to come as statistics could take into a consideration. Considerably more than one-half the 54,000,000 of people in this country are insufficiently supplied with the very things we speak of as overproduced. Half of this half are suffering sharp privation, and a smaller fraction of the total are living in object poverty, without as much of anything as actual necessity demands. If so, why are barns, elevators, warehouses, shops and cellars crowded with food, clothing, utensils and the countless useful products of industry? Obviously because those who need these things have nothing to give in exchange for them. And why have they nothing to exchange? Because their only means of purchase is through the exchange of their labor for such commodities as they need or desire.

Now, let us see where this simple and easily-followed line of reasoning leads us. If labor were more in demand and of higher market value, it would be exchanged for what is now seeking a market. But this labor would need to be usefully employed in swelling production, so that, through the convenient medium of money, the healthful

and natural exchanges of services can be maintained. If all the available labor of the country were usefully employed production would be enormously greater than it is now, but so would consumption, and it is doubtful if there would be enough of anything for which a large and general demand exists. In thus appears that through increased production the state of congestion which we now call "overproduction" would disappear, which sufficiently proves, we think, that when we say overproduction we mean something very different, and are confused and misled by the unscientific use of a term which has a very different significance from that which we usually give it. The fact that the solution of the problem will be found in an increased production resulting from the better employment of labor throws a great deal of light upon a subject which needlessly puzzles a great many wise and thoughtful men. There can be no sustained improvement in general business until labor is better employed at better wages. Labor at 90 cents a day, or idle, does not conduce to a large consumption. Every man discharged to reduce production only aggravates the evil for which a remedy is sought. If, on the other hand, we could set in motion every mill wheel and quicken into life all the agencies of production, the evil from which we are now suffering would promptly cure itself.—Iron Age.

## PROTECTIVE DUTIES IN FRANCE.

The cable brings the news that a very strong demand has come up to Paris from all over France for an increase in the protective duties on agricultural products, the demand being that the protection to agriculture shall be commensurate with that given to manufactures. The indications are that the French cabinet will accede to these requests and materially increase the duties upon these products. It is reported that a duty of 2f. per cwt. will be levied on wheat and 2f. per cwt. on flour.

This of course, is done in the interest of French agriculture and will no doubt have the tendency to improve the condition of the industry all through France in the same way that the heavy duty with a bounty for export has so materially increased the sugar industry in France, and probably will have the same effect that this duty on sugar has had. France is now exporting sugar to the neighboring nations, and as the result of this protection has been enabled to send sugar to England and sell it at such a low rate as to close a large number of the sugar refineries of Great Britain.

Thus the theory of protection in the practical affairs of every day life receives constantly increasing adherence. After Cobden had succeeded in impressing his idea upon English legislation he was sent to France to convert Louis Napoleon to the same economic theories, and succeeded, but his success was the beginning of the downfall of the emperor. Now that country has virtually abandoned its belief in Cobden's soundness as a political economist. The chief point of his attack was the corn laws, and if the French Government re-enacts the corn law as the Minister of Agriculture proposes to do, the cutting loose from the Manchester school of politics will be complete. Cobden dreamed of universal free trade. He congratulated himself that he had started forces in operation that would eventually produce it, but the nations of the world have abandoned it. They see the result of protection in the example of the United States, they see the result of free trade in the example of England, and they are not hesitating to follow the example of the young Republic in the West.—American Manufacturer.

## INDIAN-MEAL DELICACIES.

Indian Pudding.—Have one quart of milk in a stew pan over the fire, just ready to boil; stir into this four tablespoonfuls of fine cornmeal which has been moistened in cold milk enough to render it of a lumpless, creamy, consistency; after it is thoroughly mixed in the hot milk, add three tablespoonfuls of molasses; add a teaspoonful of salt after it has boiled rapidly ten or fifteen minutes, and you are ready to pour it into a well-buttered pudding dish. It will bake so as to be as good as the average in two hours, but remember those brick oven puddings that sat in the oven all night and were the better for it, and after it has baked thoroughly set in the "hot closet" of your range and give it all the time you can afford, the more the better. Six hours is three times as well as two. Add butter now and then to keep the top from burning.

Two-Thirds Corn Cake.—Sift together twice (so as to get it well mixed) two cups of Indian meal and one cup of flour, one heaping teaspoonful of saleratus, one of salt. Beat one egg lightly, mix with one-half cup of molasses and three cups of new or skimmed milk; into this stir the meal and flour as above prepared, and pour into hot gem-pans, or into

common pans, and cook in sheets and cut in squares.

Indian Bread.—Two cups of Indian meal, one half cup each of rye meal and wheat flour, two-thirds of a cup of molasses, one pint of sour or buttermilk, one teaspoonful of saleratus or cooking soda, one-teaspoonful of salt.

Brown-Bread.—Into one teacupful of sour milk stir and dissolve saleratus until it foams; add a teaspoonful of salt, two cups of rye and one of Indian meal; thin with warm water if necessary, as it should be as thick as it can be and yet pour out.

Lily's Corn Cakes.—Two cups of sweet milk, one cup of sour milk, two cups of meal, one cup of flour, teaspoonful of saleratus, butter the size of an egg, tablespoonful of sugar, teaspoonful of salt, and add one egg well beaten. These are excellent baked in roll tins or gempans, and for the poetical we give an easy way to remember the rule:

Two of sweet and one of sour;  
Two of meal and one of flour;  
One teaspoonful soda to make it rise;  
Egg and butter of a size;  
Sugar and salt complete the rule—  
Who can't make it is a fool.

Fritters.—One cup of new milk, two eggs, one-half teaspoonful saleratus, salt; make stiff enough with equal parts Indian meal and wheat flour to pat with the hands into flat, round cakes. This is easily done by wetting the hands in cold water, and with deft handling the cakes will have an average look. Drop in a skillet of hot fat. (To be eaten like a biscuit, with butter.)

Pancakes.—One cup of milk, either sour or sweet; two eggs, well beaten; one-half cup of molasses, teaspoonful saleratus, a little salt. Make a stiff batter of half rye and half Indian. Drop the batter from spoon into hot fat. This latter is quite an art; the forefinger of the right hand should be dipped in cold water, the spoon of batter held in the left hand, and the aforesaid wet forefinger with a deft twirl should take the batter out so that it will fall into a perfect ball, or it will "peter out" in thin edges and points. But none but the experts can do this perfectly. The novice can only rely on the promise that "practice makes perfect," and regret that "Whipple's snagging machine for trimming edges off pancakes" is still an unperfected dream.

Suet Pudding.—One pint of Indian meal, two cups sweet milk, one cup of chopped suet, a little salt, one-half cup of molasses, one-half teaspoonful of saleratus, chopped seedless raisins or currants and citron.

THE first patent granted to an inventor in the United States is mentioned in a speech of ex-Senator Wadleigh, of New Hampshire, in the Forty-fifth Congress. The Senator said: "An intelligent gentleman of my own State has referred me to an act of the general court of the colony of Massachusetts Bay, passed in 1646, granting to one of his ancestors, Joseph Jenks, the exclusive right of making and selling his improved scythe for the term of fourteen years. That, I think, was the first patent granted to an inventor in America. The improvement referred to changed the short, thick, straight English scythe into the longer, thinner, curved implement, with stiffened back, now in use."

## MILLING PATENTS.

The following list of milling patents granted during the past two months is specially reported by Franklin H. Hough, solicitor of American and foreign patents, 617 Seventh street, N. W., Washington, D. C.:

Issue of September 30, 1884: No. 305,976—Grain transfer and storage system, L. Smith, Kansas City, Mo. No. 305,751—Grinding mill, J. Hollingsworth, New York, N. Y. No. 305,000—Measure and register, automatic grain, J. L. and E. D. Claudin, Morton, Ill.

Issue of October 7th: No. 306,239—Flour bolt, I. Sherman, Reading, Pa. No. 306,160—Grain cleaner and separator, J. H. Knickerbocker, La Fayette, Ind. No. 306,365—Roller mills, automatic feeding device for, M. B. Titlow, Allentown, Pa.

Issue of October 14th: No. 306,401—Feed mill, L. and E. Lanke, Fredonia, Wis. No. 306,600—Flour bolt and middlings purifier, J. J. and E. T. Falkner, McMinnville, Tenn. No. 306,612—Grain separator, J. F. Hatfield, Cambridge City, Ind. No. 306,567—Middlings purifier, R. and R. Wilcox, Utica, Wis. No. 306,573—Millstone dress, G. Bernard, Mont Pont, France. No. 306,873—Roller mill feed mechanism, J. Busch, assignor to himself and J. Stevenson, Marine, Ill.

Issue of October 21st: No. 306,945—Grinding mill, roller, U. H. Odell, Dayton, O.

Issue of October 28th: No. 307,091—Bolting cloth, etc., applying binding to edges of, S. O. Brigham, New York, N. Y. No. 307,276—Flour and grain conveyor, E. S. Edmondson, Oshawa, Ont., assignor of one-half to Goldie & McCulloch, Galt, Can. No. 307,286—Grain apparatus for gradual reduction of, P. Gillen, London, Eng. No. 307,140—Grain elevator, dump and register, automatic, C. C. Radley, Brimfield, Ill.

Issue of November 4th: No. 307,354—Grain separator and grader, W. W. Ingraham, Chicago, Ill.

Issue of November 11th: No. 307,326—Grain cleaner, B. Wright, Hudson, Mich.

Issue of November 18th: No. 308,291—Grain drier, A. S. Tompkins, P. M. Courage and F. A. Cracknell, London, Eng. No. 308,095—Grain-transferring apparatus, E. S. Richards, Chicago, Ill. No. 308,264—Grinding mill roller, C. T. Hanna, Allegheny, Pa. No. 308,206—Mill burr, L. P. and C. Teed, Erie, Pa. No. 308,181—Roller mill, A. O. Byrns, Appleton, Wis.



## OUR EXPORT FLOUR TRADE.

The almost unprecedented activity of the larger wheat-flour mills throughout the country during the past two or three months, during a period of great depression among almost all manufacturing industries, is sufficient to attract attention. An examination into the development of our export trade in wheat flour reveals details respecting America's first place as a flour maker, which point to the following conclusions:

First—That the consumption of bread in this country at least, has not declined, notwithstanding the relatively high price (as compared with the cost of flour) demanded by bakers.

Second—That more American-made flour is going abroad than ever, and at a time, too, when shipments of cotton have been popularly regarded as the only increasing export of a domestic staple.

Third—That British millers are unable yet to compete successfully with flour from the United States, notwithstanding their wide range of wheats from which to select a combination for grinding, of which we on this side have heard so much of late; and

Fourth—That the increasing annual shipments from the United States of wheat as flour bids fair, at the present rate of increase, to reverse the proportions (in value) now held by our wheat and flour shipments abroad.

The domestic flour market has long been quoted comparatively quiet, with a fair inquiry for export, mostly for low grades, of which the receipts at seaboard have not been in excess of the export inquiry. Better grades at seaboard have been in larger receipt and lighter demand, and prices have not been so well maintained. On all grades, however, quotations have been low and in the main declining. The following indicates the shrinkage:

	July 1, 1883.	July 1, 1884.	Sept. 17, 1884.	Nov. 7, 1884.
No. 2.....	\$2.60	\$2.60	\$2.25	\$2.00
Winter, patent.....	7.00	6.50	5.50	4.75
Spring, patent.....	6.75	7.25	6.00	4.60

It also points to the ability of our miller to make good flour at a low cost and to sell it cheap, in part due to the outcome of the improved processes of milling introduced here of late years. It is to these, undoubtedly, that the English miller must look for the element of competition which he has thus far failed to overcome. It must not be overlooked, of course, that reduced transportation charges in the United States have facilitated shipments of flour from the interior. Comparatively few aside from those interested and those engaged in allied trades and industries have realized the proportions to which the export of American flour has grown. To the end that this subject may be brought out clearly, special analyses of reports from the United States (National Bureau of Statistics) and of agricultural returns to the British Parliament have been made.

In the past thirteen years (ending June 30) the production of wheat in the United States has nearly doubled, the proportion of the crop sent abroad (as wheat) has increased two and three-quarter times, and the share exported as flour has increased three and two-third times. The figures in detail, as per the government reports, are:

Government report	Total crop, year ending June 30.	U. S. bush.	Wheat exp'd, bushels	Flour exp'd, barrels
1871-72.....	230,728,000	26,423,000	2,514,000	
1872-73.....	249,007,000	39,204,000	2,569,000	
1873-74.....	281,254,000	71,030,000	4,094,000	
1874-75.....	300,102,000	53,047,000	3,973,000	
1875-76.....	293,130,000	55,073,000	3,935,000	
1876-77.....	39,856,000	40,325,000	3,343,000	
1877-78.....	304,194,000	72,404,000	3,947,000	
1878-79.....	420,129,000	122,355,000	5,639,000	
1879-80.....	448,755,000	153,252,000	6,011,000	
1880-81.....	493,549,000	150,595,000	7,945,000	
1881-82.....	380,230,000	95,271,000	5,915,000	
1882-83.....	504,185,000	104,285,000	9,205,000	
1883-84.....	420,164,000	70,349,000	9,152,000	

Percentages of growth, year ending June 30.	Crop inc. or dec. yearly.	P. o. crop exp'd as wheat and flour	P. o. crop exp'd as wheat	P. o. crop exp'd as flour
1870-71.....	.....	17.1	11.4	5.7
1872-73.....	Inc. 8.1	20.8	15.7	5.1
1873-74.....	Inc. 12.3	23.6	25.2	7.4
1874-75.....	Inc. 9.9	23.6	17.1	6.5
1875-76.....	Dec. 5.1	25.9	19.7	7.3
1876-77.....	Dec. 1.3	19.3	13.9	5.9
1877-78.....	Inc. 25.9	35.5	19.4	6.1
1878-79.....	Inc. 14.8	35.4	20.1	6.3
1879-80.....	Inc. 6.6	40.2	31.2	6.0
1880-81.....	Inc. 11.1	37.3	30.2	7.1
1881-82.....	Dec. 23.6	32.1	25.0	7.1
1882-83.....	Inc. 32.6	39.4	31.0	8.4
1883-84.....	Dec. 16.6	26.5	16.7	9.8

In the past season the increase of crop yield was 19 per cent.

The percentages which we have calculated show that the average annual proportion of the domestic wheat crop exported (both wheat and flour) between 1872 and 1874, years ending June 30 (three years), was 23.5 per cent., against an annual average of 23.7 per cent. exported in the four years ended June 30, 1878, and as compared with 33.5 per cent. exported in the six years ended June 30 last. The proportion which went abroad as wheat only in the periods named were respectively 17.4 per cent., 17.5 per cent. and 20.08 per cent. The shipments of flour annually averaged, during the three years first named,

6.08 per cent. of the entire crop of wheat; during the second period (of four years) 6.42 per cent., and during the past six years 7.45 per cent. In the year ended June 30 last we sent abroad 20 1/2 per cent. of the wheat raised, of which nearly two-fifths had been reduced to flour. In other words, one-sixth of the entire wheat crop was sent abroad as wheat, and nearly one-tenth in the form of flour. Thirteen years before a little over 10 per cent. of the wheat grown (1871-72) was shipped abroad in the form of wheat, and less than 6 per cent. as flour. The proportion of the crop exported as wheat has therefore increased one-half in thirteen years, while that which has gone abroad as flour has nearly doubled. The shipments of flour from this country have increased in value more rapidly than those of any other single leading product shipped. This is shown by the fact that it has risen from sixth place in 1873-74 (ending June 30) to fifth place (in value) in 1882, and to third place in 1883-84. The approximate values of the eight leading exports from the United States in those years were:

	Exports from the United States.	Years ending June 30	1882-83.	1881-82.	1874.
Cotton.....	\$247,000,000	\$109,000,000	\$211,000,000		
Wheat.....	110,000,000	112,000,000	98,000,000		
Flour.....	51,000,000	30,000,000	25,000,000		
Refined oil.....	40,000,000	47,000,000	39,000,000		
Bacon and hams.....	33,000,000	40,000,000	33,000,000		
Indian corn.....	27,000,000	28,000,000	24,000,000		
Lard.....	26,000,000	28,000,000	19,000,000		
Tobacco.....	22,000,000	21,000,000	32,000,000		

The direction in which our exports of wheat flour go now becomes of special interest. Beyond the fact that the demand from the United Kingdom and Ireland is the largest and that Central and South America are also large takers popular information is meager. The following percentage of our total exports to the countries named (approximate) have been specially prepared:

	Exports of Flour from United States, 9,205,684 barrels, 1882-83.	Barrels, 1878-79.	Barrels, 1871-72.
United Kingdom.....	62.0	47.0	13.0
Brazil.....	8.0	12.5	15.0
British W. Ind. and British S. Am.....	5.6	9.8	14.9
British N. Am. (excl. Can.).....	3.5	6.3	7.7
Canada.....	2.8	2.5	13.3
Cuba.....	2.0	2.2	6.5
Haiti and San Domingo.....	1.4	2.5	2.9
Belgium.....	1.3	0.8	0.16
Porto Rico.....	0.8	0.85	2.7
France.....	0.7	0.5	Nom.
Germany.....	0.3	0.2	0.12
Other countries.....	11.0	14.9	23.0

While the takings of flour by the West Indies and of Central and South America are thus seen to be considerable, those by the United Kingdom, aggregating over 64 per cent. in the year ending August 31, 1884, nearly two-thirds of the whole, are of sufficient prominence to call for a special review of its production and receipts of wheat (both as wheat and flour). The figures as returned to Parliament for the periods noted were:

	Total crop, U. S. bushels.	Imports, U. S. bushels.	Wheat, U. S. bushels.	Flour, U. S. bushels.	Per cent. inc. or dec. of crop.	Per cent. inc. or dec. wheat.	Per cent. inc. or dec. flour.
1871-72.....	10,050,39,407	4,306	.....	.....	.....	.....	.....
1872-73.....	10,558,45,989	6,551	.....	.....	.....	.....	.....
1873-74.....	10,322,43,197	6,430	.....	.....	.....	.....	.....
1874-75.....	14,344,43,344	5,033	.....	.....	.....	.....	.....
1875-76.....	9,883,54,226	6,036	.....	.....	.....	.....	.....
1876-77.....	10,544,45,442	6,881	.....	.....	.....	.....	.....
1877-78.....	9,703,54,101	8,905	.....	.....	.....	.....	.....
1878-79.....	11,413,50,081	8,840	.....	.....	.....	.....	.....
1879-80.....	6,855,59,533	10,443	.....	.....	.....	.....	.....
1880-81.....	7,563,57,408	12,487	.....	.....	.....	.....	.....
1881-82.....	8,723,61,006	11,005	.....	.....	.....	.....	.....
1882-83.....	10,087,69,276	16,477	.....	.....	.....	.....	.....
1883-84.....	10,396,65,237	15,012	.....	.....	.....	.....	.....

While the British imports of wheat have increased 36 per cent. since 1871-72, those of flour have more than trebled. The leading countries supplying the United Kingdom with flour and the quantities sent there for thirteen years past have been:

	Calendar years.	From United States, cwt.	Per cent. from United States.	From Germany, cwt.	Per cent. from Germany.	From Australia, cwt.	From British N. Am., cwt.	From France, cwt.	Total, cwt.*
1872-73.....	731	17	1,094	.....	321	237	1,367	4,388	
1873-74.....	1,538	26	1,091	.....	230	443	1,671	6,314	
1874-75.....	3,292	53	759	13	223	339	1,659	6,236	
1875-76.....	2,379	31	800	.....	321	357	1,659	6,136	
1876-77.....	2,320	30	930	.....	445	253	1,090	5,959	
1877-78.....	1,765	25	1,210	.....	1,034	250	1,901	7,377	
1878-79.....	3,621	46	1,114	16	1,348	302	1,901	7,377	
1879-80.....	6,062	65	915	.....	1,513	457	355	10,728	
1880-81.....	6,873	68	977	.....	1,123	524	279	10,558	
1881-82.....	7,090	68	1,387	12	1,007	259	203	11,357	
1882-83.....	7,800	60	1,087	15	1,507	341	220	13,057	
1883-84.....	11,370	70	1,028	13	1,733	509	163	16,320	
1884.....	10,235	68	1,705	12	.....	.....	.....	15,012	

\* Including other countries.

The imports of flour into the United Kingdom during the year 1883 show that of the total quantity received (16,379,317 cwt.) 11,270,918 cwt. were from the United States, or about 69 per cent., as against 59 per cent. in 1882 (when the total was 13,057,403 cwt.) and 68 per cent. in 1881 (when the total was 11,357,386 cwt.). Germany sent 1,923,760 cwt. to the

United Kingdom in 1883, or 13 per cent., against 15 per cent. of the whole in 1882 and 12 per cent. in 1881. British North America ranked third in supplying the United Kingdom with flour in the years named, sending 2 per cent. in 1883, 3 per cent. in 1882 and 2 per cent. in 1881. France came fourth, with 1 per cent. in 1883, 1.7 per cent. in 1882 and 1.8 per cent. in 1881. "Other countries" sent 15 per cent. in 1883, 20.7 per cent. in 1882 and 16 per cent. in 1881.

In the first nine months of 1884 the imports of flour by the United Kingdom have been 11,901,374 cwt. as compared with 12,245,412 cwt. in a like portion of 1883, and with 8,918,713 cwt. in nine months of 1882. Of the total received from January 1 to September 30, 1884, 68 per cent. was from the United States, 11.8 per cent. from Germany, 10.9 per cent. from Australia, 4.2 per cent. from British North America, 1 per cent. from France, and but 4.4 per cent. (or 504,948 cwt.) from "other countries." These percentages, with comparisons, for the years previously noted are as follows:

	Calendar year—			9 mos.
	1881.	1882.	1883.	1884.
United States.....	68	50	69	68
Germany.....	12	15	13	11.5
Australia.....	.....	.....	.....	10.0
British North America.....	2	3	2	4.2
France.....	1.8	1.7	1	1
Other countries.....	16	20.7	15	4.4

Illustrative of the competition in supplying wheat to millers of the United Kingdom, the following specially prepared figures are of value:

	Cwts.	Per cent. from United States.	Per cent. from Russia.	Per cent. from Germany.
1872, 42,127,726	21.0	42.4	9.34	
1873, 43,863,068	45.1	21.8	9.91	
1874, 41,827,038	55.6	13.8	7.38	
1875, 51,876,517	45.3	19.3	10.8	
1876, 44,454,657	43.4	19.8	5.22	
1877, 54,209,800	39.3	20.0	10.1	
1878, 49,006,484	58.3	18.1	10.3	
1879, 59,591,705	60.8	13.4	6.09	
1880, 55,263,934	65.4	5.23	1.91	
1881, 56,647,903	63.0	7.04	2.38	
1882, 62,503,134	54.6	14.9	4.55	
1883, 60,270,992	47.6	16.9	.....	
1884, 55,237,388	41.6	14.5	.....	

The proportion received from British India, in 1882, was 15.5 per cent.; in 1883, 12.2 per cent., and in 1884, 17.2 per cent.—Bradstreet's, Nov. 15.

## ITEMS OF INTEREST.

NEARLY all the prominent railroads of the country will, Nov. 16, begin the use of the uniform system of signals recently adopted by the general time convention at Philadelphia. This reform is regarded as only second in importance to the standard-time innovation. By its adoption a competent railroad employe of any road will be efficient in the service of any other road without first serving an apprenticeship in learning a different code of signals. The new system includes signals made with the hand, lamp, bell-cord, and whistles. Some of the most important will be the following: Go ahead, hand or lamp raised or lowered vertically; stop, hand or lamp swung across the track; back up, hand or lamp swung in a circle. Bell-Cord—One pull, start; two, stop; three, back. Flags and Colors—Red, danger signal; blue, signal of caution; white, safety; green, carried on the engine; another engine following, with equal rights with that carrying signal.

The Westinghouse Machine Company, of Pittsburgh, Pa., issue a circular saying that the company will no longer solicit sales direct from the customer. The capital and energies of the company will be concentrated strictly upon the manufacture of Westinghouse engines, the sales of which have been phenomenal. The effect of this arrangement is practically to double their working capacity, insure the carrying of a larger stock of engines for immediate shipment, and to reduce the cost, also to give the customer the advantage of counsel with an expert salesman. Fairbanks, Morse & Co., of Chicago, in connection with Fairbanks & Co. of St. Louis, control the product for the Western States and Territories; Parke & Lacy, of San Francisco, Portland, and Salt Lake City, for the Pacific slope; and Imray, Hirsch & Kappel, of Sydney and Melbourne, for Australia and Oceania. The trade heretofore controlled by the branch office at 94 Liberty street, New York, has been transferred to Westinghouse, Church, Kerr & Co., who have opened offices at 17 Cortlandt street. The firm is composed of H. H. Westinghouse, (president of the company,) William Lee Church, Walter C. Kerr, and I. H. Davis, all engineers and men of business. The new firm's circular announces their business as "contracting and consulting mechanical engineers controlling the manufacture or sale of approved specialties." They intend to purchase and control some of the best specialties in machinery and steam engineering. They will in all cases recommend, as engineers, the best article for the situation, whether in their special list or not. As West-

inghouse engines are now built only to 200-horse power, they will contract for heavy plants, from 200 horse power upwards, using such other standard automatic engines as may be best adapted to each case.

WHAT IS ZERO?—Perhaps not one in a hundred can tell off-hand why a point thirty-two degrees below freezing point on Fahrenheit's thermometer is called zero. For that matter, nobody knows. The Fahrenheit scale was introduced in 1720. Like other thermometric scales it has two fixed points, the freezing point or rather the melting point of ice, and the boiling point of water. The Centigrade and Réaumur scales call the freezing point zero and measure therefrom in both directions. This is a very natural arrangement. Fahrenheit kept the principle on which he graduated his thermometers a secret, and no one has ever discovered it. It is supposed, however, that he considered his zero—thirty-two degrees below freezing—the point of absolute cold or absence of all heat, either because, being about the temperature of melting salt and snow, it was the greatest degree of cold that he could produce artificially, or because it was the lowest natural temperature of which he could find any record. The grounds on which Fahrenheit put one hundred and eighty degrees between the freezing and boiling points are likewise unknown.

RAW HIDE WHEELS.—In 1860, just before the war, the writer was employed to start a manufactory, one of the exactions being the construction of a machine for drawing and flattening fine brass wire. The connections of parts were first made of pulleys and belts—they did not hold; gears of necessarily very fine cogs broke their teeth; some were made of steel and hardened, but did not stand. The requisite appeared to be resistance and toughness of material. Raw hide was suggested; and some gears made of that material did their work well. Since then the use of this material has been noticed under similar conditions. Lately hydraulic compressed raw hide has been favorably mentioned as material for friction rolls and pulleys, for skate rolls, and as facings for friction wheels. There is no question of its advantage as a material for small pinion gears where much strain comes on each tooth; if not exposed to the continuous action of oil—animal oil especially—these wheels will bear a deal of rough usage. One of the useful qualities of raw hide is its yielding to a shock or sudden strain without breaking, and without giving a permanent backlash. Steel and the best of Norway iron will break under strains to which compressed raw hide will only slightly and temporarily yield. The teeth of raw hide blanks can be cut in the gear cutting engine as well as those of iron or steel, and the material can be more readily turned in the lathes. If a lubricant is required in the working, clear water is the best.—Invention and Inventor's Mart.

THREE engineers who have reckoned the quantity of water pouring over Niagara falls every minute differ only two quarts in the highest and lowest estimates.

PHILLIPS BROS.' well near Butler, Pa., is one of the most phenomenal wells ever seen in the whole oil regions, and all interests is now centered there, to the exclusion of the lately discovered Glade district, which is rapidly waning. Phillips' well was drilled on August 30th, and has been producing since over 1,300 barrels daily, reaching on the 7th 100 barrels an hour. It flows with the regularity of clockwork, the oil gushing out at intervals of nine minutes and a half, the flows lasting about four minutes. Large numbers of people visit the well.

PATENTS INDUSTRIALLY CLASSIFIED.—A table prepared by Commissioner Butterworth shows that of the 300,000 patents issued by the Government, the various line of machinery and industries have received the following number:

	No. of Patents.
Application of electricity.....	5,873
Artesian wells.....	500
Beds.....	2,150
Boots and shoes.....	5,000
Bread and cracker machinery.....	440
Chairs.....	1,580
Corset patterns.....	909
Dairy utensils.....	2,428
Fences.....	2,888
Fire engines.....	597
Fire escapes.....	884
Harvesters.....	6,006
Lamps and gas fixtures.....	5,254
Laundry utensils.....	4,906
Machines for knitting.....	754
Metalting.....	3,854
Metal working machines.....	10,308
Methods of tanning hides.....	1,219
Mills and thrashing.....	8,740
Nut and bolt locks.....	734
Flows.....	6,886
Pumps.....	3,158
Railways.....	3,508
Railway cars.....	3,508
Seeders and Planters.....	3,588
Steam engines.....	5,511
Stoves and furnaces.....	3,330
Vegetable cutters.....	489
Water distributors.....	3,717
Wearing apparel.....	2,400



## UNITED STATES MILLER.

E. HARRISON CAWKER, EDITOR.

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second-class matter.)

MILWAUKEE, DECEMBER, 1884.

We respectfully request our readers when they write to persons or firms advertising in this paper, to mention that their advertisement was seen in the UNITED STATES MILLER. You will thereby oblige not only this paper, but the advertisers.

CAWKER'S AMERICAN FLOUR MILL AND MILL FURNISHERS' DIRECTORY FOR 1884, published by E. Harrison Cawker, of Milwaukee, Wis., and sold for (\$10.00) ten dollars per copy, is now ready for delivery. It shows the result of an immense amount of labor, careful inquiry and studious attention to details. It is without doubt the most accurate trade directory ever published, and will be of untold value to those desiring to reach the milling industry of America.

We glean from this neat volume of 200 pages containing no advertisements, that there are in the United States of America and our neighboring Dominion of Canada 25,500 flouring mills, taking them as they go great and small. The work indicates in about 10,000 instances the kind or kinds of power used by the mills, and the capacity in barrels of flour per day. It further indicates cornmeal, buckwheat, rye-flour and rice mills. It shows that the number of mills in the various states and territories of the United States are as follows: Alabama 153; Arizona 17; Arkansas 348; California 222; Colorado 54; Connecticut 288; Dakota 81; Delaware 93; District of Columbia 5; Florida 66; Georgia 631; Idaho 21; Illinois 1123; Indiana 1089; Indian Territory 14; Iowa 790; Kansas 489; Kentucky 718; Louisiana 61; Maine 28; Maryland 353; Massachusetts 340; Michigan 846; Minnesota 487; Mississippi 306; Missouri 1025; Montana 21; Nebraska 25; Nevada 13; New Hampshire 132; New Jersey 442; New Mexico 33; New York 1903; North Carolina 848; Ohio 1443; Oregon 145; Pennsylvania 3143; Rhode Island 51; South Carolina 74; Tennessee 301; Texas 750; Utah 110; Vermont 247; Virginia 781; Washington Territory 61; West Virginia 447; Wisconsin 777; Wyoming 2.

In the Dominion of Canada we find the record as follows: British Columbia 17; Manitoba 54; New Brunswick 198; Nova Scotia 12; Ontario 1180; Prince Edward's Island 39; Quebec 631. Total 25,500.

Taking the work throughout, and it is highly interesting to all concerned in the trade, and we take pleasure in recommending it.

## See Page 26.

The New American Dictionary and the UNITED STATES MILLER sent postpaid to any address in America for \$1.00.

W. E. EDGAR, Esq., of *The Northwestern Miller*, made us a pleasant call last month.

MILLWRIGHTS wages in Minneapolis vary from \$2.25 to \$3.00 per day of ten hours.

MR. MUNRO, representative of the Richmond Manufacturing Company, of Lockport, N. Y., called on us recently on his way to Minneapolis.

We are gratified to learn that our friend and co-laborer in the field of milling journalism, E. A. Sittig, publisher of the German-American Miller, in Chicago, has again been elected to represent his district in the Illinois State Senate.

THE present commercial relations of the German Empire make it impossible for the government to change the present grain tariffs before July 1887.

BILL OF LADING.—CORN IN BULK.—The word "package" cannot by any fair construction be made to apply to corn in bulk, according to the decision of the St. Louis Court of Appeals in the case of Rorestein vs. The Missouri Pacific Railroad Company. In this case, a clause printed on the back of a bill of lading given by the railroad company to the shipper of goods, restricting the liability for all loss or damage "to said packages" to the particular carrier in whose custody they should be at the time the happening thereof, was held not to apply to 70,000 pounds of corn in bulk.

"The Great Empire City, or High and Low Life in New York," and the UNITED STATES MILLER for one year will be sent postpaid to any address on receipt of \$1.00

THE German newspapers continue to publish articles asserting that American flour imported into Germany is adulterated. Their persisting in publishing such reports after failing to show a single instance of flour

adulteration direct from America savors of vindictiveness. It is strange that Germany makes such complaints while Great Britain seldom if ever find anything in American flour to complain of.

THE John E. Belt Bran Packing Co. of Minneapolis, is now running packing, 270 packages of 200 lbs. each per day. Size of packages 15x15x30 inches. \$15,000 has been expended for building and machinery, and up to the present time it has (so it is reported), not proved to be successful financially.

THE work advertised in this paper entitled "THE SCIENCE OF A NEW LIFE," by Dr. Cowan must not be confounded with a publication called "The Science of Life" published by a medical institution. Dr. Cowan's "SCIENCE OF A NEW LIFE" should be read by everyone. It is written in a plain style and can readily be understood by any person of average intelligence.

The Mexican Financier says: "The dwarf coco grows abundantly everywhere (around the city of Tepic). From its rich kernel the finest lubricating oil known is extracted, as well as the base for a soap, whose appearance and excellence would meet with universal favor. Why some one has not amassed a fortune from the manufacture of this oil here, is one of the many mysteries of favored Mexico. On the low lands, cotton, sugar-cane, coffee, corn and tropical fruits are easily grown, while the elevated plateaus and valleys yield a magnificent grade of wheat. And yet, strange to say, in this populous section, constantly traveled, not a single flour or grist mill is to be found nearer than Guadalajara, 250 miles from the coast."

## SPECIAL INDUCEMENTS TO SUBSCRIBERS.

If you are not already a subscriber to the UNITED STATES MILLER, now is your time to subscribe. We call your especial attention to our announcement on page 10. It may be summed up as follows:

We will send the UNITED STATES MILLER post-paid to any address in the United States or Canada for one year and a copy of Ropp's Calculator in plain binding for \$1.00, or a No. 3 Calculator and the paper for \$1.50; or a copy of Ogilvie's Popular Reading No. 3 and the paper one year for \$1.00; or the books entitled "The Great Empire City" or "Fifty Complete Stories" and the paper for one year for \$1.00; or the "New American Dictionary" and the paper for one year for \$1.60; or "Moore's Universal Assistant and Complete Mechanic" and the paper one year for \$2.75. Our readers should not fail to take advantage of these offers, which remain open until we announce to the contrary in our columns. All remittances must be made by postoffice money order or registered letter. Remittances made otherwise will be at your own risk.

## BOOK NOTICES.

The Youth's Companion is a paper which it is a pleasure to praise. For it demonstrates that it is not necessary to poison a boy's mind in order to stimulate him. The pulse is made to throb, but with an impulse to do right and to fill a high place in the world's estimation. That this can be done, and that The Companion has been able to achieve a circulation of 325,000 copies, is no small testimony to the skill and liberality with which it is edited. Those who know the paper best wonder how any American family is willing to do without it. The price is \$1.75 a year. Subscriptions sent in now will entitle to copies of all the remaining issues of this year, as well as to the whole year 1885.

## NEWS.

- W. W. Potts' mills, at Richmond, Ky., burned October 8th.
- A 100-barrel roller mill is being built at Royallin, Minn.
- A 75-barrel roller mill has just been completed at White Lake, Dakota.
- A \$30,000-mill is projected at Dallas, Tex., by Alex. Mason, of St. Louis.
- October 15th, Geo. Q. Moore's flouring mills, at Port Dickinson, N. Y., burned.
- A new mill will shortly be established by Messrs. Lee & McTavish at Rapid City.
- October 14th, Weisenbacker's mill and gin, at Val-dosta, Ga., burned. Loss, \$2,500.
- October 20, 1884, the Pillsbury "A" Mill, at Minneapolis, made 6,197 barrels of flour.
- Burned—November 9th—Elliot's flour mill, at Coulterville, Ill. Loss, \$25,000; well insured.
- October 16th, G. U. Morrison's mill, near Lowville, N. Y., burned. Loss, \$12,000; insurance, \$6,000.
- The Minneapolis Engine and Machine Works of Crocker, Pell & Boardman, are in the hands of a receiver.
- The Enterprise Machine Works, of Knoxville, Tenn., have gone into the manufacture of general mill machinery.
- The Keystone Manufacturing Co., of Sterling, Ill., lately sent a carload of their power shellers to the City of Mexico.

D. Marreing & Co., Evansville, Wis., have ordered an additional set of rolls, from the Case Mfg. Co., Columbus, Ohio.

The Wabash flouring mills at Anoka, Minn., will soon be rebuilt. The new mill will have a capacity of 2,000 barrels per day.

Miller, Noland & Co., Leetonla, O., are putting in breaks, rolls, scalpings, etc., furnished by the Case Mfg. Co., Columbus, Ohio.

H. O. Wylie & Co., New Concord, O., are putting in rolls, centrifugals, reels, etc., furnished by the Case Mfg. Co., Columbus, Ohio.

Simpson, Morris & Co., Johnstown, O., are making some changes in their mill and are putting in rolls, furnished by the Case Mfg. Co., Columbus O.

D. H. Turner, of Pearson's Mills, Ala., has ordered the machinery for a 3-run new process mill of Nordyke & Marmon Co., of Indianapolis, Ind.

A 2-run mill is being erected at Shady Grove, Ky., for Messrs. Jones and Nash, who get their outfit of Nordyke & Marmon Co., of Indianapolis, Ind.

John Tontz, of Girard, Kansas, is building an improved grain elevator, having procured his plans and machinery of Nordyke & Marmon Co., of Indianapolis, Ind.

The Mazeppa Mill, at Red Wing, Minn., was recently sold at auction, by the assignee, for \$28,000 to Mr. Hauser. The original cost of the mill was probably not less than \$70,000.

D. C. Bloomfield Sherman, N. J., is making some changes in his mill, and is adding two pairs of rolls with patent automatic feed, furnished by the Case Mfg. Co., Columbus, O.

The bread baked from the flour manufactured by Adam Simpson, of Owatonna, Minn., who is using the "Case" roller system, took the first premium at the late Minnesota State Fair.

Mr. Jas. S. Oakes, of Steubenville, Ohio, proposes to erect one of the largest flouring mills in the South, at Chattanooga Tenn. The mill will be located on the river bluff, and will have splendid water and railroad facilities.

The Case Mfg. Co., Columbus, O., have secured the contract of Bonesteel & Butler, Janesville, Wis., for a full line of breaks, rolls, purifiers, etc., for a complete roller mill on the "Case" system, using ten pairs of rolls.

Charles Arter, is building a 2-run water mill at Kirkwood, Neb., using machinery made for him by Nordyke & Marmon Co., of Indianapolis, Ind. This same firm is furnishing the machinery for two other new mills in the same county.

Royce & Shell are commencing the erection of a 100-barrel 7-break roller mill, with water power, to replace the mill destroyed by fire a short time ago. They have placed their entire contract with Nordyke & Marmon Co., of Indianapolis, Ind.

Look at these grain figures of Duluth. The wheat receipts for September and October were 6,527,000 bushels, and the shipments 2,535,000. Still it is only a few years since the wheat trade of Duluth was less than that of Winnipeg now.

The Case Mfg. Co., Columbus, O., have secured the contract of O. P. Cline & Co., Galliton, Mo., for a complete outfit of breaks, rolls, purifiers, centrifugals, reels, etc., for a full roller mill on the "Case" system, using ten pairs of rolls.

William E. Catlin & Co., manufacturers and dealers in mill-furnishing goods at 48 South Canal street, Chicago, Ill., made a voluntary assignment Oct. 20th in favor of Mark M. Pither, of 148 Lake street. The indebtedness will not exceed \$2,000, and the assets of the firm are more than ample to meet all liabilities.

The Union Mill Co., of Union, Oregon, recently despatched their president and treasurer East to arrange for the purchase of a 100-barrel roller mill outfit. Their choice fell upon the machinery and roller mills manufactured by Nordyke & Marmon Co., of Indianapolis, Ind., and they therefore contracted for an outfit using 16 pairs of rolls.

Adams & Baker, Neodesha, Kan.; Whetstone & Henderson, of Bloomfield, Ind.; W. H. Ladd, of Wheeler, Ark.; Hughes & Pixlee, Osborn, Mo.; Ferguson & Fullerton, Hudson, Ind.; A. S. Nickey, Elizaville, Ind.; J. M. Hadley, Desoto, Kan., and R. M. Stone & Son, of Scotland, Ind., are remodeling their mills to the roller system, using Nordyke & Marmon rolls, bolts and centrifugals, furnished by Nordyke & Marmon Co., of Indianapolis, Ind.

At the great St. Louis Fair, just closed, we are informed that the extensive mill machinery manufacturers, Nordyke & Marmon Co., of Indianapolis, Ind., carried away nine first premiums on different articles displayed by them (among which was their well known roller mill), and also a \$300 cash prize for the best display at the Fair; all of which, in view of the many firms exhibiting, makes the affair a creditable victory for Nordyke & Marmon Co.

Charles F. Wardell and Howard N. Hineckly, composing the firm of Wardell & Hineckly, made a voluntary assignment in the county court to Frank R. Grover, Oct. 14. The firm were agents for machinery and boiler fittings at 14 South Canal Street, Chicago, Ill., having been in existence for four years. The liabilities will foot up \$40,000, while the nominal assets are \$15,000, but in reality only \$10,000. The causes of the failure are depression in business, bad debts, and poor collections.

The flouring-mill of Deaninger Brothers, in Adrian, Mich., was destroyed by fire Nov. 25, the origin being attributed to a defective chimney. Loss probably \$10,000, on which there is \$7,300 insurance in the following companies: Traders' of Chicago, Phoenix of Hartford, American and New Jersey Centennial, and Imperial of London. The building was a landmark, having been built in 1850, by A. J. Comstock, the founder of the city, at a time when southern Michigan was a wilderness.

A news item in this paper last June mentioned that Nordyke & Marmon Co., of Indianapolis, Ind., had introduced 26 pairs of their largest sized roller mills in the 2000-barrel flour mill of the Anchor Mill Co., of St. Louis, Mo. This mill has taken first premium at the St. Louis Fair and Exposition on patent, bakers' and straight flours, in competition with many other first-class mills, and the lucky firm, in a letter to Nordyke & Marmon Co., attribute their success to the introduction of these rolls, and have also placed a large order for more roller mills.

St. Louis Items.—The Eagle Mills are turning out 300 barrels of flour per day. Twenty-five car-loads of

bran were shipped to Atlanta one day recently. The St. George Mills make 300 barrels daily. The Laclede Mill has recently added two sets of rolls (Todd's). Jefferson Mills are running full time and turning out 300 barrels per day. H. B. Eggen & Co.'s mill has increased its capacity to 300 barrels per day. The Atlantic Mill has been purchased by Mr. Louis Fess for, it is said, \$100,000. The mill will probably be started up soon.

The Appleton Manufacturing Company, Appleton, Wis., of which G. D. Rowell is president, H. J. Rogers, secretary, and F. C. Treat, treasurer, is a very extensive one. Included in the long list of implements manufactured by this company are the Badger broad-cast seeder and cultivator, the Peerless horse-hoe cultivator, first-class steel plows, harrows, corn-shellers, feed-cutters, gate-rollers, road scrapers, sleds, reversible elevator and carrier, etc. The company has recently purchased the patents of the American Grinding Mill Company. It employs fifty men, and has one of the largest foundries in the State.

Within four miles of Fergus Falls, Minn., there exist two hundred feet of fall, which is sufficient to supply, if made available by good engineering, 15,000 horse-power. Inside of the very city limits there are eighty feet of fall with an average flow of 80,000 cubic feet per minute. At seven different points within these four miles spoken of can water-power facilities be had. Five of the powers are now improved, and operate three large flouring-mills, a large paper-mill, and saw-mill, two furniture factories, a plow-factory, a carding-mill, planing mill, pattern-shop, machine shop, two printing offices, and several smaller establishments, although but a moiety of the forces applied is consumed, while the two other powers are yet wholly in reserve.

Fergus Falls, Minn., is growing very rapidly, and it is not only the heart of the Park Region, but is the business center of a large territory through its extensive jobbing and wholesale trade, to say nothing of the manufacturing interests, which are by no means insignificant. There are four flouring-mills—roller process—having a capacity of 1,500 barrels per day, and a new one of large capacity, nearly finished, by H. G. Page; a paper mill, lumber mills, furniture, foundry, and machine shops, sash, door, blinds, planing, brick, artificial stone, and many other interests. Probably there is not a more advantageous point in the Northwest for the establishment of additional flour and paper-mills, or for the production of agricultural machinery, etc.

The general prevailing dullness in mill building does not seem to have yet reached the mill building establishment of Nordyke & Marmon Company, of Indianapolis, Ind., for we are informed, since our last issue, that they have received the following contracts for complete mills and for remodeling old-style mills to the roller system; a new roller and stone steam mill for Messrs. Wiley Bros., of Norwich, Ohio; a new 30 bbl. steam mill for Mr. D. L. Yandle, of Marshfield, Mo.; a 100 bbl. eight break steam roller mill for the Montgomery Milling Co., of Montgomery, Mo.; a new roller mill for Mr. Jacob Allinger, of Quincy, Ohio; to remodel the mill of Messrs. Hinkle, Shockey & Co., of Keota, Ia.; to remodel the mill of Mr. Abner Moore, of Irving, Illinois; new machinery for the Nickells' roller mills, Nickells' P. O., West Virginia; to remodel Mr. Shafer's mill, at Lancaster, Mo.; to remodel Mr. V. F. Ferguson's mill at Cresline, Kansas, a new mill of 75 bbls. capacity, using seven breaks, for Mr. A. J. Patterson, of Union Depot, Tennessee.

The Cummer Engine Company report that Mr. Jonathan Mills' Flour Dresser, manufactured by them, is meeting with excellent success. They are selling a great many of them, and are receiving a large number of repeated orders. They are also quietly placing a number of the "Finch" rollers, which are looked upon by all who have investigated them as a very superior roll. The Cummer Engine Company have just been awarded the contract for the refrigerating plant for the brewery of Rothaker Bros. & Thomas, of Philadelphia. This comprises two of their improved refrigerating machines, two condensers, etc. They have also entered into contract with Henry Zeltner, of Morrisania, N. Y., for a large refrigerating plant, including two machines, two condensers, one of sixty-seven horse-power engines, etc., and have received an order for an engine of the same size from the Montgomery Milling Company, Montgomery, Mo. Among the recent shipments of the Cummer Company are the following: A ninety-five horse-power engine for the flouring mills of Amos Bros., Syracuse, N. Y.; two engines, sixty-seven horse-power each, for the Citizen's Electric Light Company, of Akron, O.; a 120 horse-power engine for the Upton Manufacturing Company, Port Huron, Mich.; one of 170 horse-power for the cotton mills of the Hadley Company, Holyoke, Mass.; an engine of 287 horse-power for the railroad shops of the N. Y., W. & B. R. R. Co., at Frankfurt, N. Y., and a 170 horse-power engine for the cotton mills of W. H. Cherry & Co., Mountain Mills, Ala.

The Case Mfg. Co., Columbus, O., have received the following orders the past month: B. M. Allison, Fairview, West Virginia, for breaks, rolls, purifiers, scalpings, centrifugals, reels, etc.; from the Simpson & Gault Mfg. Co., Cincinnati, O., for one "Little Giant" break machine for H. H. Kromer, Medora, Ind.; from Joseph Bens, Fredricktown, O., for one No. 1 single purifier; from Lucas & Atkins, Uhricksville, O., for one No. 1 single purifier; from Castree, Malony & Co., Flint, Mich., for two pair rolls and one No. 1 single purifier, for Malt Clapp, Rogersville, Mich.; from Clich & Miller, Dayton, Va., for breaks, rolls, scalpings, etc.; from M. S. Crowley, Brookville, for one pair rolls with patent automatic feed; from the Richmond City Mill Works, Richmond, Ind., for one pair rolls, and one single purifier, for Howard & Williams, Hillsborough, Ky.; an additional order from A. J. Vanmeter, Miami, Mo., for one improved "Case" centrifugal reel; J. P. Murphy, Mt. Sterling, Ill., for a patent automatic feed for his purifier; from W. A. Hoffman Implement Co., of Fort Worth, Tex., two pair rolls and one purifier to be shipped to Collins & Black, Ranger, Tex.; from H. Meliser, Powell, Ohio, for one No. 1 single purifier and one pair rolls with automatic feed; through W. E. Catlin & Co., Chicago, Ill., for one pair rolls with patent automatic feed, for K. C. Arnold, Trenton, N. Y.; from A. B. Childs & Son, London, England, for three pair rolls with automatic feed; from F. L. Hurdick & Co., Owatonna, Minn., for a patent automatic feed for purifier; from M. A. Shafer, Avilla, Ind., for one "Little Giant" break machine and scalper; from J. B. Miller & Co., Ashley, O., for two additional pair of rolls with patent automatic feed.



## THE CHEMISTRY OF BREAD-MAKING.

BY PROFESSOR CHARLES GRAHAM, D. SC.,  
F. I. C.  
(CONTINUED.)

Now these soluble albuminoids occur to a small extent in wheat, even the best elaborated; but they occur to a much larger extent in other kinds of cereals, as barley, for example. Of these, albumin and legumin, so called from the leguminose in which it is abundantly found, differ mainly in this respect, that the albumin can be coagulated by boiling, whereas the legumin cannot. In addition to the albumin and legumin, we have also another albuminoid substance called cerealine. Now it is the cerealine which is found so largely in the bran of wheat, and not to the same extent in barley. If we take what is termed botanically, the caryopsis, or the seed, of barley, and moisten it and keep it at a proper temperature in a warm room it will gradually grow, and, as it grows, rootlets will come out from the bottom, while the plumule pushes up inside the testa or skin; as it does so, this plumule, which is growing up inside the testa, gradually by an osmotic ac-

dextrine formed and the albuminoid body that has gone to form it. That is an interesting point for chemists.

It is of the highest importance for the milling interest, and also for the baking interest, that a very large and numerous series of analyses made even with further determinations than were possible at the time of Pélégot should be made in order to guide the miller in his selection of wheats for the different kinds of flour. I have now to call your attention to a diagram headed "The Influence of Seasons on Wheats," and have marked certain years \*, and have marked some years †, and there are one or two years marked with a ‡. Now, if we take those years against which I have attached a \*, 1846, 1849 and 1851, we learn that those years were dry years of fine harvest weather, and the result was that the total produce for those years was high. The amount of dressed corn in the total produce was also very high, and, in addition to that, the weight of corn per bushel, which is the farmer's way of determining the specific gravity of corn, was also very high. In 1846 it was 63, and that is a high weight for English wheat; on the other hand if we take 1845,

## ANALYSES OF WHEAT (PÉLÉGOT.)

	Flemish.	Provence.	Odessa.	Hérissou.	Poulard Roux.	Poulard Bleu.	Poulard Bleu.	Midi.	Polish.	Hungarian.	Egyptian.	Spanish.	Taganrog.
Water.....	14.6	14.6	15.2	13.2	13.9	14.4	13.2	13.6	13.2	14.5	13.5	15.2	14.8
Fat.....	1.0	1.3	1.5	1.2	1.0	1.0	1.0	1.1	1.5	1.1	1.1	1.5	1.9
Insoluble albuminoids.....	8.3	8.1	12.7	10.0	8.7	13.8	16.7	14.4	19.8	11.8	19.1	8.9	13.2
Soluble albuminoids.....	8.4	1.8	1.6	1.7	1.9	1.8	1.4	1.6	1.7	1.6	1.5	1.8	1.4
Dextrine.....	9.2	8.1	6.3	6.2	7.8	7.2	5.9	6.4	6.8	5.4	6.0	7.3	7.9
Starch.....	32.7	36.1	61.3	67.1	66.7	59.9	59.7	59.8	55.1	65.0	59.8	63.6	57.9
Cellulose.....	1.8	..	..	..	..	1.5	..	1.4	..	..	..	1.4	..
Saline matter.....	..	..	1.4	..	..	1.9	1.9	1.7	1.9	..	..	1.4	1.6

tion from cell to cell sets up a diastasic change throughout the whole of the berry, so at last, as it grows up and ultimately gives off a stem and leaf, it has greatly affected the starch granules inside the seed. Now, in the case of wheat, the little embryo at the bottom pushes out its root, but at the same time the plumule comes out also, thus the plumule has no diastasic action, except by osmotic action through the cells at the base. Nature, however, partly gets over this difficulty by the diastasic action set up by the albuminoid cells in the cerealine acting throughout the whole mass, so that sugars are formed for the nourishment of the young growing plant. This is the important function of the cerealine in the bran of wheat. Now, barley has got but little gluten, the albuminoids are not of that character, they are not dense and coherent, and rye flour, maize and rice are all equally deficient, and the consequence is that for the preparation of fermented bread there is no cereal that can compare with wheat.

I will ask you now to look at some results obtained by the chemist Pélégot. In this table you will find the composition of different typical wheats—Flemish, Odessa, Hérissou, Provence, Midi, Polish, Hungarian, Egyptian, Spanish and Russian. In this table we have the albuminoids divided into those which are insoluble and those which are soluble. This method of stating the results is of very great importance to the baker. If you look at this table you will find, by dividing the insoluble albuminoids by the soluble, that we have in

1848 and 1852, against which I have placed a †, we had wet summers, cold harvest weather, and the result unsatisfactory; such years as, indeed, we have experienced much more recently, and in these cold wet summers and autumns we obtained wheats with a low total amount of produce. The total dressed corn was low in 1848, being only 89, whereas in 1846 it was 93, and in addition to that the specific gravity of the corn was also low; 56 in 1845, and 58 in 1848, instead of being, as I have said before, 63 in a good year. Then we have a high nitrogen; the amount of albuminoids was high, but the amount of resisting gluten was very low—in other words, these flours were ill adapted for baking purposes. On this other table, I have some experiments I made for the purpose of this lecture, in order to point out to you by experimental numbers the character of the changes which take place when flour and water are kept together at about a temperature of 85° F., which is the temperature that the baker employs. Vienna whites, allowed to stand only ten minutes, give us 76 of soluble products. In 2 hours, however, it is as high as 5.16, in 4 hours, 7.2, and in 8 hours 9.73. In second households, we have in the cold 3.01; 2 hours, 5.82; 4 hours, 7.78; in 8 hours, 11.31. Now, in No. 2 we have also in 8 hours 10.15—the brown meal being very much of the same general character as that of No. 2. A small table shows the result of a distinctly soft flour, in which in 4 hours the amount of soluble matter was 10.49, in 8 hours 16.11. When, however, that flour was treated by a method investigated by our

indeed in improving the character of our inferior wheats, due, perhaps, to inferior harvest conditions.

I proceed now to the subject of milling. I am not a miller, and I have not sufficient time, even if I had sufficient knowledge, to entertain you with a discussion as to the respective merits of high and low reduction, of rollers versus stones. The City and Guilds Institute of London a few years ago established examinations in the chemistry of bread-making, and due chiefly to the active aid of Mr. Dunham, the proprietor of *The Miller* newspaper, and also aided by active millers taking a keen interest in their trade, they have recently added milling to their curriculum of examination. You are probably most of you aware that the City and Guilds Institute carry on in technology much the same kind of examinations, although I hope better in character, that the Science and Art Department do throughout England, Scotland and Ireland in their May Science Examinations. Milling has been given to those interested in milling, and in looking over the character of the questions set I am bound to say that in a very short time it must stimulate the young millers to study, not merely the chemistry of their art, but to study the engineering part of their profession in a way that has not been hitherto done in our country, and therefore I think that the City and Guilds Institute will do considerable good in this direction.

As a chemist, however, and as I am lecturing upon the best means of preparing wheat bread fit to compare with the beautiful bread of Moscow or Paris, I think the following conditions are essential to be aimed at in good milling. In the first place, the corn must be degerminated, because the germ is an active hydrating and diastasic body; secondly, the bran must be thoroughly eliminated, because the cerealine of the bran has this injurious action on the fermentation,

practical farmer in replying to that toast. In my reply I referred to some of the advantages of science; but then, speaking to British farmers, I pointed out some of the disadvantages of science; I pointed out how by using both high and low pressure steam on board ship, as Elder was beginning to do, with the development of the railway carrying powers of America, the United States farmer would in a very few years be able to sell wheat at a profit at 40s. per quarter at Liverpool, not only were they very incredulous, but they laughed at me; but do-day you can get it at 32s. per quarter, and this is not entirely due to the great activity of the Americans in growing wheat. The fact is, that the great wheat speculators in America were not aware of the enormous amount of wheat that India can send to us. This great speculation in wheat, what they call the "wheat ring," has broken down completely, and we are now able, thanks chiefly to India, to have wheat at this very low price. It is an additional satisfaction to an Englishman that South Australia, New Zealand and also India, have a large wheat-growing capacity, because in India free trade is the rule, whereas the Americans are protectionists, and by our purchasing large quantities of wheat from India, we may expect, of course, that they will take large quantities of our manufactured products, hardware and cotton, from us in exchange, so that in that way from our colonies and from India we shall not only have cheap wheat, cheap flour for some time to come but also have the prospect of a better condition of our manufacturing industries.

The miller's method of testing wheats consists in judging by their appearance, by the weight per bushel, by the country in which they are grown, and lastly by grinding, by baking some. A distinguished baker in Paris, M. Bolland, adopted a method by which he separated the gluten from the flour, and this

## INFUSION PRODUCTS OF FLOUR.

	Cold. 15 Mins.	Two Hours.	Four Hours.	Eight Hours.		Cold.	Two Hours.	Four Hours.	Eight Hours.
Vienna Whites.	trace.	2.41	3.65	4.00	No. 1. Household.	1.36	2.83	4.09	5.39
Maltose.....	trace.	2.17	2.79	4.35		0.89	2.34	2.40	3.80
Dextrine.....	0.70	0.58	0.70	1.29		0.76	0.65	1.29	2.12
Soluble albuminoids.	0.76	5.16	7.20	9.73		3.01	5.82	7.78	11.31
Best Whites.	none.	1.57	2.04	3.41	No. 2. Second.	1.57	6.01	6.01	7.59
Maltose.....	1.21	1.48	2.74	2.85		1.04	0.84	1.21	0.67
Dextrine.....	0.71	0.58	0.81	1.64		1.05	1.45	1.31	1.96
Soluble albuminoids.	1.92	3.63	5.59	7.80		3.66	8.80	8.53	10.15
Best Households.	1.00	1.36	4.09	3.93	Meal. Brown.	trace.	3.41	3.93	4.99
Maltose.....	1.13	2.46	2.09	3.79		2.70	0.95	2.09	2.89
Dextrine.....	0.93	0.79	1.23	1.42		0.62	0.70	1.39	1.33
Soluble albuminoids.	3.06	4.61	7.41	9.14		3.32	5.06	7.41	9.21
INFERIOR FLOUR.									
	Four Hours.	Eight Hours.							
			WITH LIME.					HIGH DRIED.	
			Four Hours.	Eight Hours.			Four Hours.	Eight Hours.	
Maltose.....	6.82	11.14	6.82	8.20		4.44	4.44		
Dextrine.....	0.43	1.23	0.11	2.15		1.78	2.91		
Soluble albuminoids.	3.19	3.74	3.34	3.34		2.48	3.29		
	10.44	16.11	10.27	13.69		8.70	10.64		

that it produces too great a quantity of maltose sugar and dextrine, and introduces also too large a quantity of soluble albuminoids into the bread, which soluble albuminoid, not the starch, as some people imagine, give high color in the oven. Degermination and elimination of the bran are, I hold, tests of the highest milling, whether it be by rollers or by stones. For brown bread and for whole-meal bread there is a difference, and I will later on point out how we may to some extent eliminate or obviate the difficulties when we employ brown flour or whole-meal flour. A very important point is the admixture of wheats; formerly millers were obliged to use the wheats as they could find them in their own country, but now we have excellent wheats from the United States, from Canada, from the Black Sea, from Australia, and lastly, and not of the least interest, from India and Persia. I read a statement in a newspaper recently that the Indian Government had been making an investigation into the question of the expense of growing wheat in India, and they find the natives can grow wheat for 12s. a quarter—16s. will leave a profit. Some objection has been made to the employment of too large a quantity of Indian wheats when mixed with our own, owing, it is said, although I have not noticed it myself, to the aromatic flavor of bread that has had too large a proportion of Indian wheat ground with our English or other wheats. This is, however, a matter that the miller can readily obviate by a little attention to the admixture, and by not using perhaps quite so much of the Indian wheats. At the present moment we are able to get excellent wheats as low as 32s. per quarter. Now I remember at a dinner, I think it was in 1872, the motto of the Royal Agricultural Society of England was given as a toast after dinner, that motto being "Practice with Science," and I was associated, being a scientific man, with a

gluten was put into a tube, and the tube put into the oven, and according to the amount of expansion of the gluten, so did he decide upon the quantity of the gluten there, and its resisting action to steam—in other words, he judged in that way of the goodness of the flour for the fermenting process of making bread.

The plan which I suggested some time ago was this, that 1 oz. of flour should be mixed with 4oz. of water, and allowed to stand at the temperature of about 80° or 85° for two hours; that it should then be filtered, the first portion of the filtrate will be a little thick, but the latter portion will not be so thick. You put this into a test tube, which you have previously marked at 1oz. and 2oz.; it is filled up to 1oz., and then is mixed with 1oz. of strong methylated alcohol, which we can get for about 6s. a gallon; the result is this, that you obtain a precipitation of most of the soluble matters, of maltose, of dextrine, and the soluble albuminoids; and according to the amount of precipitation, so you would decide as to the amount of soluble matter that would be produced during the sponge stage of bread-making.

I proceed now to consider the question of bread-making. The ways of making bread are very numerous in different parts of the country. I will, therefore, limit myself solely to the London system of bread-making, which is one of the best. The London system consists of three parts—the preparation of the ferment, the preparation of the sponge, and the preparation of the dough. A sack of flour is 280 lbs. in weight, and it should yield from 94 to 96 quarter loaves. In the preparation of the ferment, 6 lbs. to 8 lbs., sometimes as much as 12 lbs., of the very best potatoes are employed; inferior potatoes will not do. These are thoroughly cleansed, washed, cut up and boiled, and then when made into a thin paste they are poured into a tub, and cold water added until the tem-

## INFLUENCE OF SEASONS ON THE CHARACTER OF WHEAT CROPS. (LAWES AND GILBERT.)

HARVESTS.	PARTICULARS OF THE PRODUCE.				COMPOSITION OF GRAIN.			COMPOSITION OF STRAW.		
	Total Corn and Straw Per Acre in Pounds.	Per Cent. Corn in Total Produce.	Per Cent. Dressed Corn in Total Corn.	Weight per Bushel of Dressed Corn in Pounds.	Per Cent. Dry (312° F.)	Per Cent. Ash in Dry.	Per Cent. Nitrogen in Dry.	Per Cent. Dry (312° F.)	Per Cent. Ash in Dry.	Per Cent. Nitrogen in Dry.
† 1845.....	5,545	33.1	90.1	56.7	80.8	1.91	2.25	7.96	0.92	
† 1846.....	4,114	43.1	93.2	63.1	84.3	1.96	2.15	6.02	0.87	
† 1847.....	5,221	36.4	93.6	62.0	80.5	1.93	2.30	5.56	0.73	
† 1848.....	4,517	36.7	99.0	55.5	80.5	2.02	2.39	7.24	0.78	
* 1849.....	5,330	40.9	95.5	63.5	84.4	1.94	2.14	6.17	0.82	
* 1850.....	5,496	34.6	94.3	60.9	84.4	1.94	2.14	6.17	0.82	
* 1851.....	5,379	33.2	92.1	62.6	84.2	1.93	2.13	5.88	0.78	
* 1852.....	4,299	31.6	92.1	56.7	83.3	2.00	2.38	6.33	0.79	
* 1853.....	3,932	25.1	85.9	50.2	80.8	2.24	2.35	6.27	0.80	
† 1854.....	6,908	35.6	96.0	61.4	84.9	1.93	2.14	5.08	0.69	
Means.....	5,053	35.4	92.1	59.6	82.9	1.93	2.20	6.17	0.82	

the Flemish a ratio of 34 of the insoluble to 1 of soluble; in the Odessa, 8 of insoluble to 1 of soluble; in the Midi, 9 to 1; in the Egyptian, 13 to 1; and in the Spanish, 5 to 1.

I only give these as being illustrative of the very great variety that occurs in different cereals. A very interesting point to notice in the table of determinations made long ago by Pélégot is this: You will find that if you divide the dextrine, as he termed it, by the soluble albuminoids, you will, with the exception of one or two, find that it is nearly four times as much as the soluble albuminoids; in many cases it is exactly. In Midi it is 1.6 soluble albuminoids to 6.4 dextrine, which is exactly 1 to 4. I can see in the next one, the Polish, it is 1.7 of soluble albuminoids to 6.8 dextrine, showing that there must be some very distinct relation between the amount of

distinguished chairman in 1858, with lime (only in this particular instance I simply used a little chalk instead of quicklime) we had a considerable reduction at the end of eight hours; and that is the important point, because the process of the London baking requires a great many hours, and therefore it is desirable to see what influence hard water such as one would get in Kent, or made so artificially, would be. You will see that we are enabled to lower somewhat the amount of soluble albuminoids. That same flour, when heated to a temperature of 100° for several hours, as in the kiln-drying process, gave still better results, and at the end of eight hours the amount of soluble products was reduced from 16 down to 10.6, showing therefore that the heat-stiffening action of the kiln is of the very greatest importance



perature is lowered to 85°. When this is done, about 2 lbs. of flour are added, and then one quart of good brewers' yeast stirred in; this is the preparation of the "ferment;" fermentation begins, the yeast acts upon the albuminoids of the wheat, and the albuminoids of the wheat so acted upon act then upon the starch of the boiled potato, and the result is we have maltose sugar, and dextrine, and peptone bodies formed. After five hours, the time depending on the temperature, the head falls and then the ferment is allowed to rest for about two hours.

(To be concluded in our next.)

#### NONSENSE.

**STOPPING A MILL.**—The late Judge Ball, though a charming conversationalist and socially popular, was very irritable. The Cork court-house, in which he on one occasion opened assizes, was backed by an ancient flour-mill of large dimensions, owned by a litigious gentleman named Bendeeble. So close was the mill to the court-house that the noise of the machinery disturbed the tympanum of Judge Ball, who was in his later years hard of hearing. "What noise is that, Mr. Sheriff?" he thundered, with fiery face. "It is a mill, my lord," meekly responded that functionary. "Let it be stopped," commanded the judge. "I can not stop it, my lord," said the sheriff, "the owner is the only one who can do that." "Send for the owner, then," said the judge. This was done, and the order given. Bendeeble took it literally and unconditionally. The mill was stopped, and remained stopped long after the assizes were over. Bendeeble, who was no fool, sued for damages, and the government had to pay a large sum to compromise.—*Every Other Saturday*.

An old Texan being asked by a stranger to describe a norther said:

"I'll tell you what it is, stranger, a norther puts in the quickest work of anything you ever saw. You see that lake down there (pointing to a beautiful lake about a mile distant), last spring, in the latter part of March, I was fishing in the afternoon; the sun was shining, and it was as warm almost as the middle of summer. The fish was jumping up all over the lake, and they were biting splendidly. A shade came suddenly over the lake, and I thought I smelt a strange smell that often precedes a norther. I immediately turned away from the lake and looked toward the northwest, and I saw a small dark cloud passing like lightning and knew I must hurry home. After looking a short time at the cloud I turned and looked at the lake, when, to my astonishment, the lake was frozen over and many fish were lying on top of the ice. The fish had jumped up, and the lake had frozen over so quick they could not get back. Stranger, maybe you think that is stretching things a little, but I'll tell you a norther can beat anything but lightning, and it can hurry that up mightily."—*Marshall Messenger*.

SCENE—Chatham street.

Mr. Solomons—Ouf yer don't know dot gote vos von of those wot Presidents vears, I don't tell yer, so hellup me grashus. You can take those gote for shust \$18. You don't? Vell, if dot gote isn't goin' for \$15, by cheminy. Nein, eh? Vell, dot gote I givs you for nodings at all and \$10.

The customer, after a long wrangle, lays a \$5 bill on the counter. Mr. Solomons quickly takes up the money and calls out to his wife:

"Py cheminy, Becky, I orders me one of dose Peter Cooper boxes by der ferry-houses. I sells me no more gotes. I am von of dose vot-you-calls-'em—a fillvandthrepidst!—*N. Y. Star*.

"WHAT is philosophy?" It is something which enables a rich man to see there is no disgrace in being poor.

A colored child recently fell on its head from a two story window, and its mother in narrating the accident said: "Dat yungun was comin' down feet fust wid all the chance in the worl' of being kilt, when er kin' Providence turn he head down; he brack two brick een de pavement, but he didn't eben brack a button off he cloze.

"Is land high in Vermont?" asked a speculator of an old Green Mountain farmer.

"You just bet it is!" was the reply. "If the trees wasn't so stunted, the clouds couldn't get by at all!"

**PLENTY OF TIME.**—Two men, each carrying a lot of tools, came slowly up to the corner of—street, and there paused. A Milton car had just passed the corner and was fully 20 feet away.

"There's our car," remarked one, calmly.

"No matter," replied his companion, "we'd have to hurry to catch it. There'll be another in 'an hour," and they seated themselves in a doorway and lighted their pipes. They were plumbers.

**HOW HE ESCAPED.**—First Thief—"You're a lucky dog. I didn't expect to see you out so soon. So the jury didn't convict you?"

Second Thief—"No."

"And yet there you stood before them with the stolen money in your pocket. It's lucky they didn't search you."

"They did."

"They did? Then they didn't find it?"

"No. I didn't have it."

"Why, what had you done with it?"

"Paid it to my lawyer."

At the entrance to one of the prominent dry goods stores on Federal street, Allegheny, last evening, a lady, remarkable for the wax-like appearance of her complexion, stood waiting for a car. A young man, accompanied by two ladies, passed in and came out in a few minutes. The lady was still standing like a statue in the same position. The young man said, "Now just look at this," and raised his hand and struck the supposed figure a smart slap on the cheek. The statue turned a pair of flashing black eyes upon him and wilted him with a look. He stammered incoherently, "I—I—thought you were a dummy," and almost ran away, allowing his companions to follow as best they could.—*Pittsburgh Telegraph*.

**A MEAN TRICK.**—A New York business man had just purchased a new stiff hat, and he went into a saloon with half a dozen of his friends to fit the hat on his head. They all took beer, and passed the hat around so all could see it. One of the meanest men that ever held a country office went to the bartender and had a thin slice of Limburger cheese cut off, and when the party were looking at the frescoed ceiling through beer-glasses this wicked person slipped the cheese under the sweat-leather of the hat, and the man put it on and walked out.

The man who owned the hat was one of your nervous people, who is always complaining of being sick, and who feels as though some dreadful disease was going to take possession of him and carry him off. He went back to his place of business, took off his hat and laid it on the table, and proceeded to answer some letters. He thought he detected a smell, and when his partner asked him if he didn't feel sick, he said he believed he did. The man turned pale, and said he guessed he would go home. He met a man on the sidewalk who said the air was full of miasma, and in the street-car a man who sat next to him moved away to the end of the car, and asked him if he had just come from Chicago. The man with the hat said he had not, when the stranger said they were having a great deal of small-pox there, and he guessed he would get out and walk, and he pulled the bell and jumped off. A cold perspiration broke out on the forehead of the man with the new hat, and he took it off to wipe his forehead, when the whole piece of cheese seemed to roll over and breathe, and the man got the full benefit of it, and he came near fainting away.

He got home, and his wife met him and asked him what was the matter. He said he believed mortification had set in, and she took one whiff as he took off his hat, and said she should think it had.

"Where did you get into it?" said she.

"Get into it?" said the man; "I have not got into anything, but some deadly disease has got hold of me, and I shall not live."

She told him if any disease that smelled like that had got hold of him and was going to be chronic, she felt as though he would be a burden to himself if he lived very long. She got his clothes off, soaked his feet in mustard-water, and he slept.

The man slept and dreamed that a small-pox flag was hung in front of his house, and that he was riding in a butcher wagon to the pest-house. The wife sent for a doctor, and then when the man of pills arrived she told him all about the case. The doctor picked up the patient's new hat, tried it on, and gave a sniff. He said the hat was picked before it was ripe. The doctor and the wife made a post-mortem examination of the hat, and found the slice of Limburger.

"Few and short were the prayers they said." The doctor brought to the bedside the hat, opened up the sweat-leather, and showed the dying man what it was that smelled so, and told him he was as well as any man in the city. The last we saw of the odoriferous citizen, he was trying to bribe the bartender to tell him which one of those pelicans it was that put that slice of cheese in his hat-lining.

"WILL you have some soup or fish?" asked the waiter of a stranger.

"No, sir. Bring me some meat and pertaters, and coffy."

After he had finished his meat and pertaters, and coffy, he leaned back in his chair and said:

"Now, you kin bring in your fish and soup, if you want to, but you shouldn't go tridin' with a Kansas City man when he's hungry."—*New York Star*.

THE facility with which the banks of this country can be used by dishonest presidents, cashiers, and directors, reminds us of a little story. "An' phwat is yer son James doin' now, Mrs. O'Flaherty?" "Sure, an' he's become a great gentleman, wid such foine clothes on him ye'd not know him. He's in some bank, Mrs. O'Flanigan." "An' phwat bank is it?" "Faith, an' its the Fary Bank I belave they calls it." The difference between some of our banks of issue and deposit and our fary banks is more imaginary than real.—*Bulletin of the American Iron and Steel Association*.

now, Mrs. O'Flaherty?" "Sure, an' he's become a great gentleman, wid such foine clothes on him ye'd not know him. He's in some bank, Mrs. O'Flanigan." "An' phwat bank is it?" "Faith, an' its the Fary Bank I belave they calls it." The difference between some of our banks of issue and deposit and our fary banks is more imaginary than real.—*Bulletin of the American Iron and Steel Association*.

**A MAINE FARMER'S FISH STORY.**—A farmer who was in town from Wells, Wednesday morning, related a remarkable circumstance which happened in his town one day last week. For some time past the herring have remained away from shore, and the fishermen were unable to obtain them in very large numbers. All at once they began to come in shore, even into the breakers, in immense numbers, probably being frightened by dogfish or bluefish. The number kept increasing, and when the tide went out it left a place of about an acre completely covered with fish. In some spots, where there was a depression in the sand, the fish were piled in to the depth of about five feet. The farmers in the vicinity soon learned of the fact, and they flocked to the shore and secured cart-loads of the fish to be used on their farms as fertilizers. One farmer obtained sixty cart-loads.—*Biddleford (Me.) Times*.

**A NEW JERSEY PORCUPINE.**—The Millbrook correspondent sends an account of a most remarkable conquest made by four hunters at that place Saturday evening. James and Frank Kimble, Amos Van Gorden, and Abe Warner went on the mountain hunting raccoons. Their dogs, late in the evening, barked up a tree. Hastening to the tree, they saw on a limb about forty feet from the ground what they supposed to be a "coon." Mr. Warner climbed the tree and shook the animal out. When it fell to the ground the dogs attacked it, but it succeeded in running into the rocks and was followed by the dogs. Here they managed, after a sharp and severe struggle, to kill it. The men then took sticks and succeeded in getting it out, when, to their great surprise, it proved to be a large porcupine, which would have weighed at least twenty-five pounds.—*Belvidere (N. J.) Apollo*.

**HOW TO HANG A GRINDSTONE.**—To hang a grindstone on its axle to keep it from wobbling from side to side requires great skill. The hole should be at least three-eighths or one-half inch larger than the axle, and both axle and hole square; then make double wedges for each of the four sides of the square, all alike and thin enough, so that one wedge from each side will reach clear through the hole. Drive the wedges from each side. If the hole through the stone is true, the wedges will tighten the stone true; if the hole is not at right angles to the plain of the stone, it must be made so, or the wedge correspondingly must be altered in the taper to meet the irregularity of the hole.

**BUCKWHEAT THRESHING.**—There are several ways buckwheat can be threshed. Where it is a special crop and is grown for making flour, farmers make a threshing floor in the field by scraping and sweeping smooth a piece of ground twenty or thirty feet in diameter. The straw is spread here as it is drawn from the field and threshed by the tramping of horses or cattle in the old-fashioned way. This rough and ready method has some advantages and some obvious drawbacks. A slow but common method is to thresh with flails on a barn floor. This may do when the barn is not provided with a machine, but the machine does the work very quickly and very well when a necessary precaution is taken. This is to take out the concave, or upper covering of the cylinder, and put in its place a suitable piece of smooth hard wood plank. The grain is quite soft and brittle, and close contact of the spikes of the machine will break much of it, but this change removes this danger. In feeding the machine it is well to crowd it rather hard, so as to save the grain from injury as much as possible; the straw then forms a soft cushion, against which the spikes will beat and knock out the grain without damaging it.

**BEWARE of small boots!** Three years ago, Adam Pfaff, of Warsaw, N. Y., was drawn as a jurymen and wore to court a new pair of boots which were considerably too small for him. Although they gave him intense pain, he kept them on during the day. At night when he removed his boots he found no rest and was unable to sleep. His feet, legs, hands, arms and body began to swell, and a physician was called. Medical aid was of no avail, and from that day to this the intense pain has never left him for an instant. His joints are enlarged, while his feet and hands are swollen to three times their natural size. He is entirely helpless, and has to be fed like a baby. He spent thousands of dollars to gain relief, but no physician has been able to understand his peculiar case.

#### "SELLING SHORT."

A "short" or "short seller" is one who speculates for a decline in prices. He is the opposite to the operator for a rise. The "short" is a "bear." His antagonist is the "bull," also known as the "long." The short thinks prices are too high and must go down. In order to make the difference between the present price and that to which he foresees it will descend, he goes into the market, borrows a lot of the stock, sells it, and waits for his opportunity to buy it back at a lower price, in which case he will make the difference. He is short in the same way that a man is said to be "short" who has no money. The stock market short has no stocks. He is short of them, and he will have at some time to go into the market and buy enough to replace what he has borrowed. The expression quoted by our correspondent about the shorts unloading their stocks was an incorrect one. Shorts have no stocks to unload. They have to "cover"—that is, buy what are needed to replace the stocks they have borrowed and sold. It is in this necessity of buying back the stocks that he has sold that the great danger to the shorts exists. When they go into the stock market to buy stocks the stocks they are short of they frequently make the appalling discovery that the man from whom they borrowed, and to whom they must return them, are the ones from whom they must buy. There are plenty of persons in Wall street depraved enough to encourage the lambs to sell short and to make it as easy and pleasant as possible to borrow the stock, knowing all the while that only from themselves can the shorts buy the stocks to make their deliveries, and intending when the shorts bid for the stocks to make them pay blood money prices. In this way a Mr. Duff, of Boston, a few years ago made the operators who went short of St. Joe common at .50 pay him 350 for it. When they sold it was to Mr. Duff they sold. It was from Mr. Duff they borrowed the stock which they sold to him, and it was from Mr. Duff they had to buy the stock to return to Mr. Duff. Under these circumstances Mr. Duff kindly consented to let them have at 350 the amount they were short of. Why he did not charge them 1,000 has never been explained. It may have been that he was too good or that 350 was all the money they had. We trust this explanation may open the eyes of the "lamb" to the inconveniences that are likely to attend short sales. A man does not need to be a moralist to see that it is very sinful to sell short if you have to buy back the stock at his price from the same man to whom you sold it.—*Chicago Tribune*.

The wheat trade of the Pacific coast constitutes the most marked feature of the commerce of that section of the country. The total exports of wheat, including wheat flour, from California, Oregon and Washington Territory amounted during the year ended June 30, 1884, to 90,058,634 bushels, of which 24,447,363 bushels were exported from ports of California, 5,384,303 bushels from ports of Oregon, and 226,968 bushels from ports of Washington Territory. The exports of wheat, including wheat flour, to Europe amounted to 28,490,410 bushels, and constituted 88.13 per cent. of the total exports of wheat from the Pacific coast.

This wheat trade with Europe gives employment each year to a fleet of about 400 sailing vessels which pursue the route around Cape Horn. The distance from San Francisco to Liverpool by that route is about 16,000 miles, and the average time of the passage of sailing vessels is a little more than four months.

During the year ended June 30, 1883, there were 440 ships cleared from Pacific coast ports to Europe, of which 110 sailed under the American flag and 330 under foreign flags; and during the year ended June 30, 1884, there were 388 ships cleared, of which 95 sailed under the American flag and 293 under foreign flags.

The question as to the practicability of securing some shorter and cheaper route of transportation to the grain markets of Europe has for years been one of absorbing interest to the people of the Pacific coast. They have from the beginning taken a deep interest in the various projects which have been advocated for the construction of a ship-canal across the isthmus which connects North and South America, and also in the proposition to construct a ship-railway across the Isthmus of Tehuantepec.

A year ago it was thought that a considerable amount of grain might be carried across the continent by the Southern Pacific Railroad to New Orleans, and thence be shipped to Europe. But the depression in ocean rates between San Francisco and Europe has prevented any movement of that sort, the ocean rates being much below any rates which could be profitably maintained by the railroad company.



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## CONGRESS OF ITALIAN MILLERS.

Last month there was a convention of Italian millers in Turin, the results of which are expected to be of great benefit to the Italian milling industry.

Over a hundred of the leading milling firms were represented, and Signor Garca, of the firm of Grattoni & Co., of Turin, to whom is due the success of the meeting was presiding officer. The following subjects were considered:

1. The necessary steps to be taken to secure lower railroad tariffs; free return of empty sacks and the introduction of suitable cars for carrying grain in bulk.
2. To organize an opposition to the increase of the import duty on grain.
3. To establish a custom among millers not to contract ahead more than ninety days for delivery of flour.
4. To establish milling schools.
5. To found a Millers Association, for the protection and promotion of the milling industry.
6. To prepare a petition to the government, asking that in the future, flour is to be delivered to the army instead of grain.
7. To call in practical millers to give expert testimony in cases where milling interests are brought before courts.
8. To adopt uniform standards for measuring and numbering grades of flour and grain.

**MARKETS OF LONDON.**—There are fourteen markets of various kinds. The most important of these are: Farringdon dead meat and poultry market; and Deptford Foreign Cattle Market, Islington Cattle Markets, fifteen acres in extent; Billingsgate Fish Market and Covent Garden Vegetable Market; and into these markets are imported annually for consumption in London about 800,000 head of cattle, 4,000,000 of sheep, calves and pigs; also 9,000,000 of fowls, game and rabbits, and over 100,000,000 of eggs, and a like number of oranges and lemons. About 320,000,000 of quartern loaves are consumed in London annually.

The attention of the East Indian government has been drawn to a tree in southern India, from which large supplies of caoutchouc can be drawn. This is the "tuchmig" of the Chinese, or *pramertia glandulifera* of botanists. Unlike the South American tree, from which the caoutchouc is tapped by piercing the bark, the gum is obtained from the new source by breaking the boughs and drawing it out in filaments. If the new caoutchouc is at all equal to the old in insulating properties, it will form a timely discovery, for the introduction, of electric lighting has created an increased demand for India rubber-coated wires.—*Boston Journal*.

**COST OF THE HOCKING VALLEY STRIKE.**—The Columbus Board of Trade has received reports from a committee appointed to investigate the losses sustained by the strike in the Hocking Valley since June 27th. The loss of trade to members of the Board and to the coal companies has been \$1,620,000. The loss to business men outside of the Board has been \$350,000. The loss of freight to railroads centering here, \$1,100,000. The loss to furnaces in the valley, \$225,000. The aggregate losses are \$4,011,000. Of this, it is estimated that the loss to the city of Columbus is \$3,511,000.

**THE ALUMINUM CAP FOR THE WASHINGTON MONUMENT.**—Arrangements have been made for the exhibition in New York City next week of the huge metal cap that will be placed on top of the Washington Monument of the national capital. This cap, which has been manufactured at Philadelphia by order of the government, is of the hitherto rare metal aluminum, and weighs only 117½ ounces. It will be burnished, and as the metal does not corrode by exposure to the elements, it will, when in position, shine like polished silver forever. The lightning-rod with which the monument will be provided will be jointed to the aluminum cap, and as the latter metal is the best known conductor of electricity save silver, the rod will not be required to project from the top of the cap. The metal is now produced at Philadelphia in commercial quantities.

**WASTE OF OIL.**—An old machinist, of nearly fifty years' experience, stated in his shop recently that he had run a countershaft, which he pointed out, on five drops daily of oil, the shaft being one and a half inches diameter and having three bearings in hangers. "Yet," he said, "that shaft has never squeaked." The shaft carried pulleys which drove a drilling lathe, a polishing and wood turning lathe, a small screw cutting lathe, and a grindstone. Most of the weight of these pulleys was between the two hangers on which he lavished two drops of oil a day. He kept his shaft level and in line. The belts pulled almost equally. The boxes were babbitted. The shaft made about three hundred turns.

The experimenter said that he had tested oils as well as quantity. He believed in clear animal oil—whale or lard. He felt assured that good oil was wasted wherever drip pans were used, and he never used them. There is a text here for establishments to sermonize over, where the shaft bearings drip oil and the floors are soaked with it.—*Scientific American*.

**JUDGE C. J. MCFARLAND**, who presided over the district courts in Polk county, and other counties in central Iowa, away back in the forty-fives, will be remembered by many of the early settlers. Many anecdote are told of him, and one of the latest received is thus told by the *Hamburg Democrat-News*: "In 1855 Judge McFarland, in charging the grand jury in Marion county, said: 'This Maine liquor law—anatics made it, and some people think, it is unconstitutional, but that is none of your—business. It is your duty to indict all persons who sell liquor. There is plenty of liquor sold in this town. If you want to know where it is sold, wait until court adjourns; watch the bystanders; see where the lawyers go; see where the judge goes.'"

Old man Pettigrew of Austin is very precise in his statements, and is also a strict constructionist. One morning a neighbor rushed in on Pettigrew while the latter was eating his breakfast, and exclaimed, excitedly: "Your house is on fire." "Sir?" "Your house is burning up." "You are wrong, sir." "Wrong?" "Yes, sir; this is not my house. I only rent it."—*Texas Siftings*.

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1885.

## HARPER'S WEEKLY.

ILLUSTRATED.

HARPER'S WEEKLY has now, for twenty years, maintained its position as the leading illustrated weekly newspaper in America. With a constant increase of literary and artistic resources, it is able to offer for the ensuing year attractions unequalled by any previous volume, embracing a capital illustrated serial story by W. E. NORRIS; illustrated articles with special reference to the West and South, including the World's Exposition at New Orleans; entertaining short stories, mostly illustrated, and important papers by high authorities on the chief topics of the day.

Every one who desires a trustworthy political guide, an entertaining and instructive family Journal, entirely free from objectionable features in either letterpress or illustrations, should subscribe to HARPER'S WEEKLY.

## HARPER'S PERIODICALS.

Per Year:

HARPER'S WEEKLY.....	\$4 00
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HARPER'S BAZAR.....	4 00
HARPER'S YOUNG PEOPLE.....	2 00
HARPER'S FRANKLIN SQUARE LIBRARY, One Year (52 Numbers).....	10 00

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The last Five Annual Volumes of HARPER'S WEEKLY, in neat cloth binding, will be sent by mail, postage paid, or by express, free of expense (provided the freight does not exceed one dollar per volume), for \$7.00 per volume.

Cloth Cases for each volume, suitable for binding, will be sent by mail, postpaid, on receipt of \$1.00 each.

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Address HARPER & BROTHERS, New York.

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## HARPER'S BAZAR.

ILLUSTRATED.

HARPER'S BAZAR is the only paper in the world that combines the choicest literature and the finest art illustrations with the latest fashions and methods

of household adornment. Its weekly illustrations and descriptions of the newest Paris and New York styles, with its useful pattern-sheet supplements and cut patterns, by enabling ladies to be their own dressmakers, save many times the cost of subscription. Its papers on cooking, the management of servants, and housekeeping in its various details are eminently practical. Much attention is given to the interesting topic of social etiquette, and its illustrations of art needle-work are acknowledged to be unequalled. Its literary merit is of the highest excellence, and the unique character of its humorous pictures has won for it the name of the American Punch.

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Per Year:

HARPER'S BAZAR.....	\$4 00
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HARPER'S WEEKLY.....	4 00
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HARPER'S FRANKLIN SQUARE LIBRARY, One Year (52 Numbers).....	10 00

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## Harper's Young People.

AN ILLUSTRATED WEEKLY.

The serial and short stories in HARPER'S YOUNG PEOPLE have all the dramatic interest that juvenile fiction can possess, while they are wholly free from what is pernicious or vulgarly sensational. The humorous stories and pictures are full of innocent fun, and the papers on natural history and science, travel, and the facts of life, are by writers whose names give the best assurance of accuracy and value. Illustrated papers on athletic sports, games, and pastimes give full information on these subjects. There is nothing cheap about it but its price.

An epitome of everything that is attractive and desirable in juvenile literature.—*Boston Courier*.  
A weekly feast of good things to the boys and girls in every family which it visits.—*Brooklyn Union*.  
It is wonderful in its wealth of pictures, information and interest.—*Christian Advocate*, N. Y.

TERMS: Postage Prepaid \$2.00 Per Year.

Vol. VI. commences Nov. 4, 1884.

Single Numbers Five cents each.  
Remittances should be made by Post-Office Money Order or Draft, to avoid chance of loss.  
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Address, HARPER & BROTHERS, New York.

*Patapsco Flouring Mills.*

ESTABLISHED 1774.

*C. A. Gambrill Manufacturing Co.*

*Baltimore, Sep 18 1884*

*Geo. J. Smith Mfg's Pump Co.*

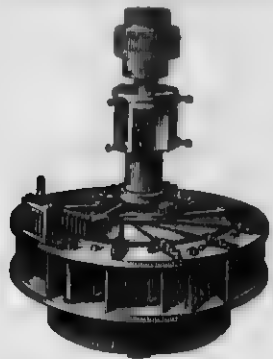
*Jackson Mich.*

*Gentlemen, In reply to your favor - and as we would say the Seven No. 0 and the one No. 1 Bells br's of you last spring are entirely satisfactory in every particular, the quality of the work they are doing is fully up to and the quantity far exceeds our expectations very truly yr's etc*

*C. A. GAMBRILL MFG. CO.*

*H. C. Corner 27th*





## JAMES LEFFEL'S IMPROVED WATER WHEEL,

Fine New Pamphlet for 1883.

The "OLD RELIABLE" with Improvements, making it the Most Perfect Turbine now in use, comprising the Largest and the Smallest Wheels, under both the Highest and Lowest Heads in this country. Our new Pocket Wheel Book sent free. Address,

**JAMES LEFFEL & CO., Springfield, Ohio,**  
and 110 Liberty St., New York City.

[Please mention this paper when you write to us.]



## POOLE & HUNT'S Leffel Turbine Water Wheel

Made of best material and in best style of workmanship.

### Machine Molded Mill Gearing

From 1 to 20 feet diameter, of any desired face or pitch, molded by our own SPECIAL MACHINERY. Shafting, Pulleys, and Hangers, of the latest and most improved designs.

Milers and General Outfit for Fertilizer Works.

Shipping Facilities the Best in all Directions.

**POOLE & HUNT, Baltimore, Md.**

N. B.—Special attention given to Heavy Gearing for Pulp and Paper Mills.  
[Mention this paper when you write to us.]

## RICHMOND MANUFACTURING CO., LOCKPORT, N. Y.,

MANUFACTURERS OF RICHMOND'S CELEBRATED

Warehouse Receiving Separator, Grain Separator  
AND OAT EXTRACTOR

### WHEAT SCOURERS,

—AND—

Wheat Brush Machines,

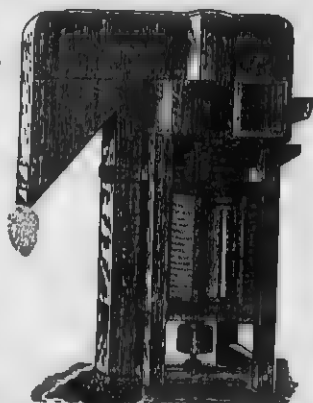
UPRIGHT AND HORIZONTAL BRAN DUSTERS,

\*CENTRIFUGAL FLOUR DRESSING MACHINES.\*

Thousands of these Machines are in successful operation, both in this country and in Europe. Correspondence solicited.

SEND FOR DESCRIPTIVE CATALOGUE.

[Please mention this paper when you write.]



Adjustable Brush Smut Machine.

## GOVERNORS { For Water Wheels } Cohoes Iron Foundry & Mch. Co.

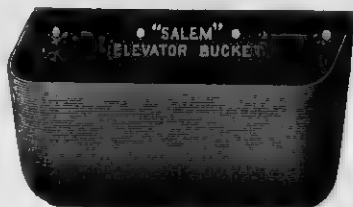
Send for Catalogue. Cohoes, N. Y.

## The "Salem" Elevator Bucket.

Shovel Edge.

Seamless, Rounded Corners,

\*CURVED HEEL.\*

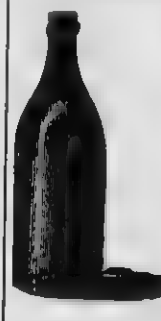


Runs Easy,

Strong and Durable.


\*Empties Clean.\*

**W. J. CLARK & CO., Sole Manufacturers, SALEM, O.** New York Office & Salesroom, No. 9 Cliff Street.



### BOTTLED BEER.

**VOECHTING, SHAPE & CO.,**  
SOLE BOTTLERS FOR  
JOSEPH SCHLITZ BREWING COMPANY'S  
**CELEBRATED MILWAUKEE LAGER BEER.**  
Cor. Second and Galena Streets,  
MILWAUKEE, WISCONSIN.  
BOTTLE SUPPLIES CONSTANTLY ON HAND.



[Please mention this paper when you write to us.]



### BURNHAM'S IMPROVED Standard Turbine


—IS THE—  
Best constructed and finished,  
gives better Percentage, more  
Power, and is sold for less money,  
per horse power, than any other  
Turbine in the world.  
New Pamphlet sent free by  
**BURNHAM BROS., YORK, PA.**

## PATENTS!

We continue to act as Solicitors for Patents, Caveats, Trade Marks, Copyrights, etc., for the United States, Canada, Cuba, England, France, Germany, etc. We have had thirty-five years' experience. Patents obtained through us are noticed in the SCIENTIFIC AMERICAN. This large and splendid illustrated weekly paper, \$3.20 a year, shows the progress of Science, is very interesting, and has an enormous circulation. Address **MUNN & CO., Patent Solicitors,** Publishers of SCIENTIFIC AMERICAN, 37 Park Row, New York. Hand book about Patents sent free.

**WALKER BROS. & CO.,**  
FLOUR AND GRAIN  
*Commission Merchants*  
TRINITY SQUARE,  
LONDON, E. C., - ENGLAND.

**GANZ & CO.,**  
Budapest, Austria-Hungary.  
We are the first introducers of the Chilled Iron Rollers for milling purposes, and hold Letters Patent for the United States of America. For full particulars address as above.  
[Mention this paper when you write to us.]



### STEEL CAR PUSHER

Made entirely of STEEL.  
ONE MAN with it can  
easily move a loaded car.  
Will not slip on ice or  
grease.  
Manufactured by  
**E. P. DWIGHT,**  
Dealer in Railroad Supplies, 740  
Library St., Philadelphia, Pa.  
[Please mention this paper when you write to us.]

# NORDYKE & MARMON CO., INDIANAPOLIS, IND.

BUILDERS FROM THE RAW MATERIAL OF

## ROLLER MILLS, CENTRIFUGAL REELS,

Flour Bolts, Scalping Reels, Aspirators, Millstones, Portable Mills,

AND KEEP THE LARGEST STOCK OF

## All Kinds of Mill Supplies in the United States.

### 500 BARREL MILL IN MISSOURI.

READ WHAT AN OLD MILLER, WHO HAS THIRTY-FOUR PAIRS OF THESE ROLLS IN CONSTANT USE, SAYS:

MESSEURS. NORDYKE & MARMON CO., INDIANAPOLIS, IND.

Gentlemen:—In regard to the workings of our new mill erected by you, will say it is working fully up to and beyond our expectations. Our average work is fully 85 per cent. over your guarantee. Since starting our mill last July we have had no complaint of our flour from any market where sold. It gives universal satisfaction, and we have it scattered on the trade from Chicago to Galveston, Texas. Our yields are all that are attainable. We have tested it on both Spring and Winter wheats with satisfactory results on both varieties. Since the mill was turned over to us we have not changed a spout or a foot of cloth, nor have we found it required to make any changes. We have run as long as six days and nights without shutting steam off the engine, not having a "choke" or a belt to come off. The mill is entirely satisfactory to us, and for a fine job of workmanship, milling skill and perfection of system, we doubt if it is surpassed in the United States to-day. It is certainly a grand monument to the ability and skill of Col. C. A. Winn, your Milling Engineer and Designer. You may point to this mill with pride and say to competitors, "You may try to equal, but you will never beat it." Wishing you the success that honorable dealing deserves, I am,  
Yours, etc., **R. H. FAUCETT, Pross.**

### 500 BARREL MILL IN ILLINOIS.

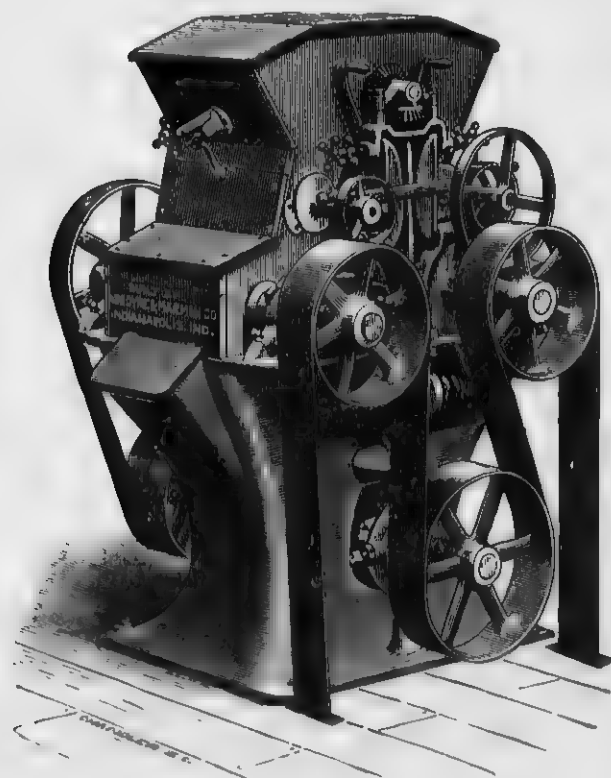
MESSEURS. NORDYKE & MARMON CO., INDIANAPOLIS, IND.

Gents:—We started up our mill in June last year, and it gives us pleasure to say that your Roller Mills are doing splendid work and give us no trouble. Your milling program required no changes, and concerning yields, we get all the flour from the offals, and we sell our best grades in the principal markets of the United States at the highest prices offered for any flour. All the machinery made by you is first-class, and we would not know where to purchase as good.  
Yours respectfully,  
**DAVID SUPPGER & CO.**

### 125 BARREL MILL IN INDIANA.

NORDYKE & MARMON CO., INDIANAPOLIS, IND.

Gentlemen:—The 125 barrel All Roller Mill you built us has been running all summer, and does its work perfectly. Before contracting with you for this machinery we visited many Roller Mills throughout the West and Northwest, built by the different leading Mill-furnishers, and from all we could see, those built by you seemed to be giving the best satisfaction, and this is why we bought our machinery of you. Our mill comes fully up to your guarantees, and the capacity runs over your guarantee. The bran and offal is practically free from flour, and our patent and bakers' flour compares favorably with any we have seen elsewhere. I don't think anyone can beat us. Your Roller Machines are the best we have seen; they run cool, and the interior does not sweat, and cause doughing of the flour. Judging from our success, we would recommend other millers to place their orders with you.  
Yours truly,  
**J. T. FORD.**



Letters on file in our office from a large number of small Roller Millers giving as favorable reports as above. A portion will be published as occasion demands.

## SPECIAL MILLING DEPARTMENT!

Mill Builders and Contractors—Guarantee Results.

Motive Power and Entire Equipment of a Modern Mill Furnished under one Contract.





Mention this paper when you write.

**EUREKA MANUFACTURING CO.,**

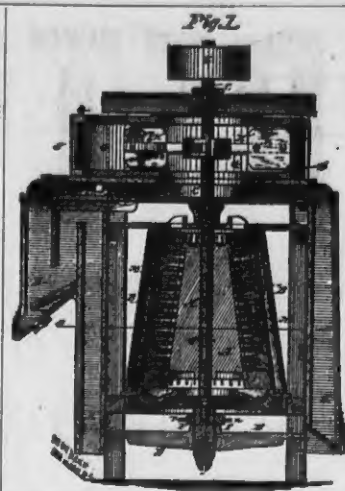
Manufacturers and Sole Proprietors of the

**BECKER BRUSH**

And Galt's Combined Smut and Brush Machine.

The Only Practical Cone-Shaped Machines in the Market, and for that Reason the Best. **ADJUSTABLE WHILE IN MOTION.**

NEARLY 1,000 OF THESE MACHINES IN USE in the United States and foreign countries, and so far as we know all that use them are pleased. Millers, millwrights, and milling experts claim the Cone Shape Solid Cylinder Brush is the true principle to properly clean grain. All machines sent on trial, the users to be the judges of the work. For price and terms apply to

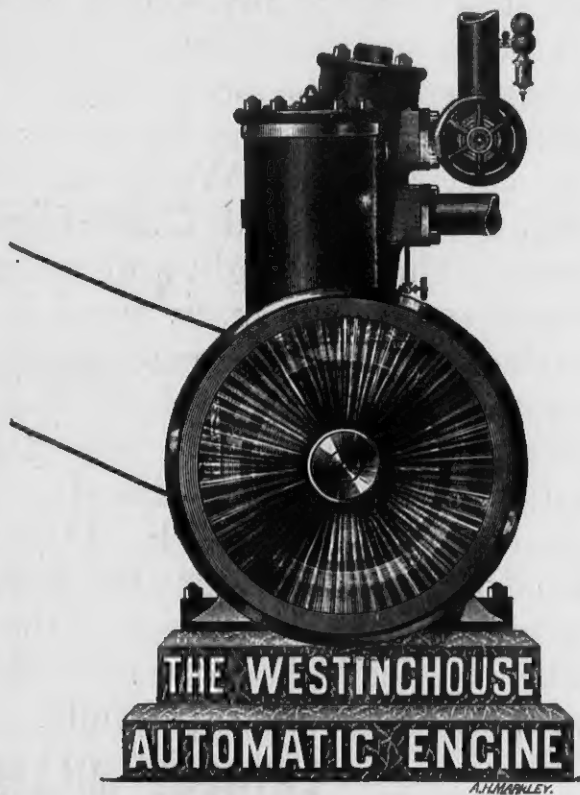
**EUREKA MANF'G CO., Rock Falls, Ill., U. S. A.****BRAN AND MIDDLINGS.****MITCHNER & LYNNE,**

Old Corn Exchange, LONDON, ENGLAND,

Are C. I. F. Buyers of the Above.

**THE WESTINGHOUSE MACHINE CO.,**

PITTSBURGH, PA.



SALES FOR OCTOBER, 1884.

O. F. B. Barber, Flouring Mill.....	Golden, Col.,	75 H. P.
Kenyon & Newton, Planing Mill.....	Brooklyn L. I.,	75 "
U. S. Illuminating Co.....	Charleston, S. C.,	60 "
" " " " (2d order) " " " "	" " " "	60 "
" " " " (3d order) " " " "	" " " "	60 "
" " " " (4th order) " " " "	" " " "	60 "
" " " " (5th order) " " " "	" " " "	60 "
Toledo Electric Co.....	Toledo, Ohio,	60 "
Thompson-Houston Electric Light Co.....	Quincy, Ill.,	60 "
" " " " (2d order) " " " "	" " " "	60 "
Thompson-Houston Electric Light Co.....	Philadelphia, Pa.,	50 "
Consumers Gas, Fuel and Light Co.....	Chicago, Ill.,	45 "
J. M. Gusk, Electric Light.....	Pittsburgh, Pa.,	45 "
Himebaugh & Merriam, Electric Light.....	Omaha, Neb.,	40 "
Chas. Aubert, Irrigation.....	Fort Allen, La.,	40 "
Susquehanna Water Power and Paper Co.....	Conowingo, Md.,	35 "
C. H. Klemar, Woolen Mill.....	Faribault, Minn.,	35 "
The "Battle House," Electric Light.....	Mobile, Ala.,	35 "
Hastings Electric Light Co.....	Hastings, Neb.,	35 "
" " " " (2d order) " " " "	" " " "	35 "
O. W. Butts, Packing House.....	Kansas City, Mo.,	35 "
Morris Butt & Co.....	" " " "	35 "
Lowell M. Palmer, Paper Mill.....	Brooklyn, L. I.,	35 "
Smith & James, Saw and Flour Mill.....	Columbia, Mo.,	35 "
E. B. Ward, Ginning.....	Plainview, N. C.,	30 "
W. W. Pugh, Draining.....	Home Place, La.,	30 "
J. Lepayre, Irrigation.....	Bayou Goula, La.,	30 "
Baltimore & Ohio R. R. Shops.....	Columbus, Ohio,	25 "
G. W. Young, Ginning.....	Honey Grove, Texas,	25 "
Harvey Miller, Nickel Plater.....	Cincinnati, Ohio,	25 "
Timothy Vinton, Paper Mill.....	Brattleboro, Vt.,	25 "
Lawrence Machine Shop.....	Lawrence, Mass.,	25 "
Lombard, Ayres & Co., Saw Mill.....	Mobile, Ala.,	20 "
H. W. Jones, Ginning.....	Row Landing, La.,	20 "
Kingsland, Jackson & Co., Machinists.....	Chicago, Ill.,	15 "
J. Christman, Elevator.....	Stewartsville, Mo.,	15 "
Bel Bros., Flour Mill.....	Osgo, Iowa,	15 "
Fred Hanson.....	Eau Claire, Wis.,	15 "
G. B. Shaw, Elevator.....	Kansas City, Mo.,	15 "
" " " " (2d order) " " " "	" " " "	15 "
Stoutz & Co., Planing Mill.....	Mobile, Ala.,	15 "
T. G. Canaler, Ginning.....	Itaska, Texas,	15 "
H. Hartzmann.....	Ash Hill, Mo.,	15 "
J. Greenlaw, Ginning.....	Calvert Texas,	15 "
Shutte & Co., Planing Mill.....	Pittsburgh, Pa.,	15 "
A. M. Good & Bro., Saw Mill.....	Waynesboro, Pa.,	15 "
Hermann Fletcher.....	Louisville, Ky.,	13 "
Worcester Gas Light Co.....	Worcester, Mass.,	8 "
Anderson & Barr.....	Philadelphia, Pa.,	8 "
Thompson-Houston Electric Light Co.....	St. Louis, Mo.,	8 "
W. C. Kerr & Co., Yacht Engine.....	New York,	8 "
" " " " (2d order) " " " "	" " " "	8 "
H. L. Howe, Fan Blower.....	Canandaigua, N. Y.,	8 "
Ed. Lehma, Tea Store.....	New Orleans, La.,	4 "
R. H. Nevins, Ice Factory.....	Mayo, Fla.,	4 "
F. Plumb, Ditching.....	Streator, Ill.,	4 "
" " " " (11th order) " " " "	" " " "	4 "
" " " " (15th order) " " " "	" " " "	4 "
Steamer "Big Sandy," Electric Light.....	Cincinnati, O.,	4 "

Total, Fifty-eight Engines.....1,685 H. P.

Besides the above, nineteen engines were purchased by our various agents for general stock, making a total sale of seventy-seven for the month. We are now enlarging our works to a capacity of 100 engines per month, or four engines per working day. In view of the universal stagnation of trade, we would candidly ask if the above list is not conclusive as to the standing of the Westinghouse Automatic Engine?

Sales Department Conducted by

**WESTINGHOUSE, CHURCH, KERR & CO.,** 17 Cortlandt St., New York.  
**FAIRBANKS, MORSE & CO.,** Chicago, Cincinnati, Cleveland, Louisville and St. Paul.  
**FAIRBANKS & CO.,** St. Louis, Indianapolis and Denver.  
**PARK & LACY,** San Francisco and Portland, Ore.  
**PARK, LACY & CO.,** Salt Lake City, Utah.  
**IMRAY, HIRSH & KAMPFEL,** Sydney and Melbourne, Australia.

**THE Milwaukee, Lake Shore & Western**

RAILWAY,

**THE BEST LINE BETWEEN**

Milwaukee, Sheboygan,

Manitowoc, Appleton,

New London and Wausau.

**2 DAILY THROUGH TRAINS 2**

EACH WAY.

Sleeping Cars on all night Trains.

Double Berth 75 cents to \$1.00.

**THE BEST ROUTE**

From Oshkosh and Appleton to all Points North and Northwest via New London Junction.

The fishing resorts on the Northern extension of the Line offer unsurpassed inducements to sportsmen. Special excursion rates for parties. Guide Book entitled "Forests, Streams and Lakes of Northern Wisconsin and Michigan" forwarded to any address on application to the undersigned after March 1st, 1884.

H. G. H. REED,

Gen'l Sup't.

H. F. WHITCOMB,

Gen'l Pass. Agent.

Corner East Water &amp; Mason Streets.

**MILWAUKEE, WIS.****Detroit, Grand Haven & Milwaukee RAILWAY LINE.****The Shortest & Cheapest Route**

-TO THE-

**EAST**

New York, Boston, and all points in Michigan.

**DAYLIGHT EXCURSION!**

Steamer "City of Milwaukee,"

**Grand Haven and Return \$1.00**

Leaves daily (except Sunday) at 7:00 A. M., and connects with Limited Express. Night Steamers leave daily (except Saturday) at 8:30 P. M., and connect with Steamboat Express.

**SLEEPING and PARLOR CARS**

ON THROUGH TRAINS.

Ticket Offices, 99 Wisconsin Street, at Dock, foot of West Water Street.

**B. C. MEDDAUGH,****T. TANDY,**

West. Pass. Agt. Gen'l Fr't and Pass. Agt.

**G. R. NASH, Manager.****DeLOACH WATER WHEELS.**

Simplest and Cheapest Manufactured, and have received the unqualified endorsement of all who have used them. Every small Mill can afford one. Send for large illustrated Catalogue of Wheels and general Mill supplies. "The Star Grind" Mill stones from our quarry are unsurpassed and sell remarkably low. A. A. DeLoach & Bro., Atlanta, Ga. U. S. A.

**BIRGE & SMITH, PRACTICAL****MILLWRIGHTS**

PLANS, SPECIFICATIONS &amp; ESTIMATES

MADE FOR ALL KINDS OF

**MILLWORK, MACHINERY, ETC.**

Flour, Sawmill, Tanners' and Brewers' Machinery, and General Mill Furnishings.

Corner of East Water and Knapp Sts.,

**MILWAUKEE, WISCONSIN.**

(Please mention this paper when you write to us.)

**"TRIUMPH" CORN SHELDER**

CAPACITY

3000 BUSHELS PER DAY.

Shells wet or dry corn.

CHEAPEST AND BEST SHELDER.

**PAIGE MANUF'G CO.,**

No. 12 Fourth St., Painesville, O.

**Flint & Pere Marquette R. R.****LUDINGTON ROUTE.****Fast Freight & Passenger Line.**

Freight Contracted on through Bills Lading to all points in

Michigan, Indiana, Ohio,

New York, Pennsylvania,

New England &amp; Canada.

AT LOWEST RATES.

All freight insured across Lake Michigan. Passengers save \$2.75 to all points East.

Dock and Offices, No. 24 West Water St., one block from Union Depot.

**L. C. WHITNEY,**

Gen'l Western Agent.

**Hopewell Turbine.**

The most efficient and economical Water Wheel made, which cannot be broken or damaged by stones or timbers getting into it while running.

Gives an average of 86 per cent. of power from half to full gate, and is fully warranted in every particular.

Manufactured at the

**Variety Iron Works,**

YORK, PA.

Send for Illustrated Catalogue and Price List.

Address, A. J. HOPEWELL, Edinburg, Va.

**WISCONSIN CENTRAL LINE****3 TRAINS EACH WAY DAILY**

-BETWEEN-

**MILWAUKEE, FOND DU LAC, OSHKOSH,****NEENAH and MENASHA.**

-WITH-

**PARLOR CARS**

through from Chicago via Milwaukee without change on Day Trains.

**New & Elegant Sleepers**

from Chicago to Stevens Point on Train leaving Chicago via C. M. &amp; St. P. R'y Co., at 9 P. M.

Also a Superb Sleeper from Milwaukee to Neenah attached to the same train, leaving Milwaukee at midnight. N. B.—This Sleeper will be ready for passengers at Reed St. Depot, Milwaukee, at 9 o'clock P. M.

**2 TRAINS EACH WAY DAILY**

-BETWEEN-

**MILWAUKEE and EAU CLAIRE.****1 A DAILY TRAIN TO****Ashland, Lake Superior****NO CHANGE OF CARS**

From Milwaukee to Stevens Point,

Chippewa Falls, Eau Claire or

Ashland, Lake Superior.

These superior facilities make this the **BEST ROUTE** for **GRAND RAPIDS, WAUSAU, MERRILL** and points in **CENTRAL WISCONSIN.****F. N. FINNLY,**

Gen'l Manager, Milwaukee.

**JAS. PARKER,**

Gen'l Pass. Agent, Mil.

**Improved + Walsh + Double + Turbine**

This wheel has a perfect fitting cylinder gate and allows no water to escape when closed.

**POWER GUARANTEED**

equal to any wheel on the market using equal amount of water. Address for particulars,

**B. H. & J. SANFORD,**

Phoenix Iron Works,

Sheboygan Falls, Wis.

**Milwaukee & Northern Railroad.****THE OLD RELIABLE ROUTE.****17 Miles the Shortest Line**

-TO-

**GREEN BAY,**

Oconto, Fort Howard, Depere, Menasha,

Neenah, and Appleton.

Marinette, Wis., and Menominee, Mich.

-THE NEW ROUTE TO-

New London, Grand Rapids, and all points in

**CENTRAL AND NORTHERN WISCONSIN**

The new line to Menominee is now completed, and opens to the public the shortest and best route to all points on the Michigan Peninsula.

**CONNECTIONS.**

AT PLYMOUTH with the Sheboygan and Fond du Lac Division Chicago &amp; North-Western R'y for Sheboygan and Fond du Lac.

AT FOREST JUNCTION with Milwaukee, Lake Shore and Western Railway.

AT GREEN BAY with Chicago &amp; North Western and Green Bay, Winona &amp; St. Paul Railroads, for all points North and West.

**C. F. DUTTON,**

Gen'l Sup't.

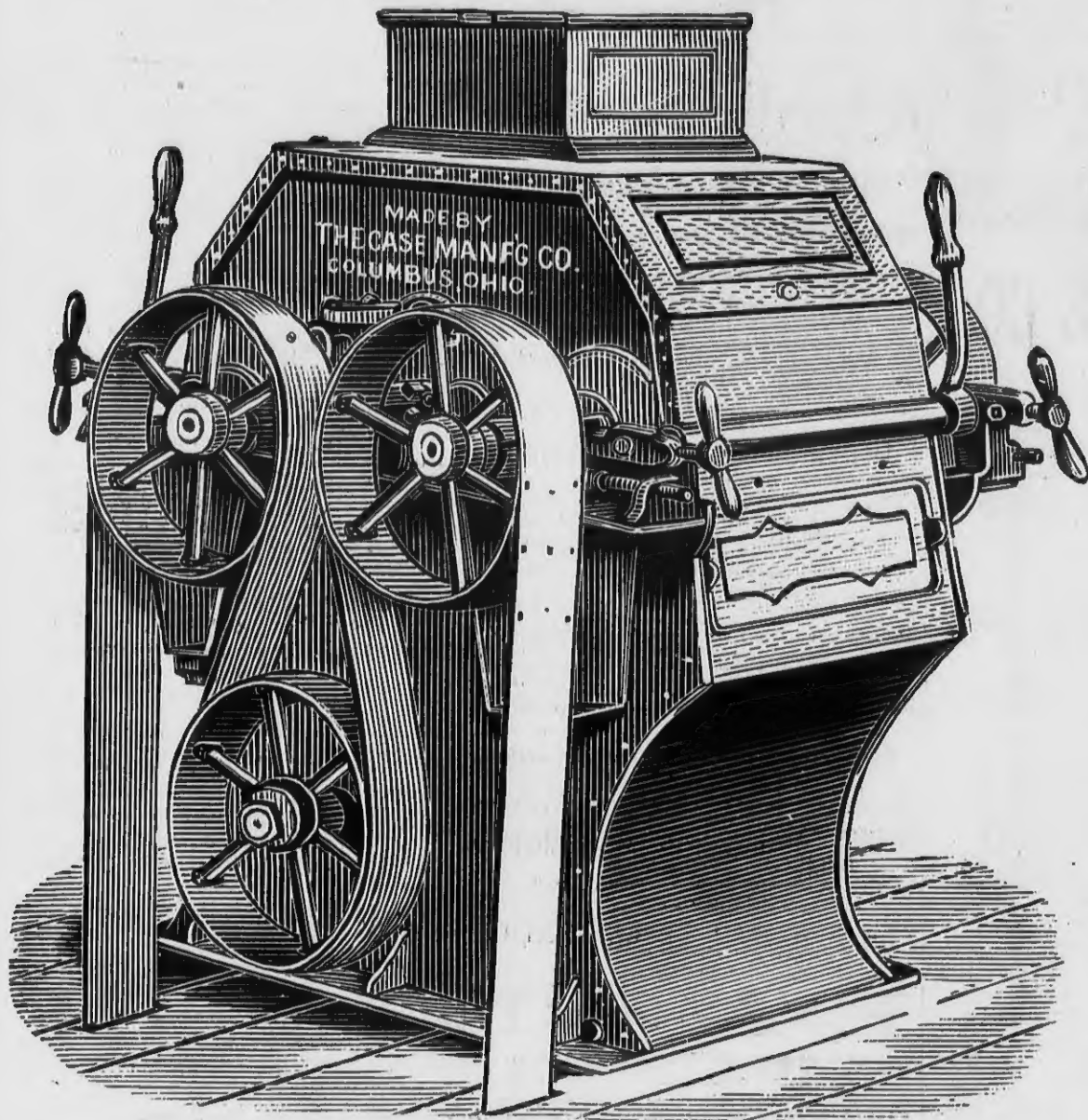
**F. P. REGAN,**

Gen'l Ticket Agent.



# WHAT BETTER EVIDENCE

Need be furnished than such letters as the following of the superior merit of our line of machinery. It is the common testimony of all who deal with us.



THE FAMOUS "BISMARCK" ROLL.

LATROBE, PA., Oct. 20th, 1884.

**CASE MANUF'NG CO., COLUMBUS, OHIO.**

GENTLEMEN:--We have this day settled with your agent, D. E. DAVIS, and can say to you and the rest of the world that our mill built by you meets fully your guarantee in every particular, and works to our entire satisfaction. The flour made on it is equal to any sold in these eastern markets, and our flour is taking the lead wherever it has been sold. The machinery furnished us by you is first-class in every respect. We do not think your Rolls, Purifiers and Centrifugals can be beaten, they run light and noiseless, and your patent Automatic Feed is absolute perfection. If we were going to build another mill, we should surely adopt your line of machinery, and we are so well satisfied that we have this day presented your agent, Mr. D. E. DAVIS, with a handsome gold watch for fulfilling his promises of giving us one of the best 125 Bbls. Roller Mills in the state of Pennsylvania.

Yours respectfully,

**LATROBE MILLING CO.,**  
H. C. BEST, Sec.

P. S.—I fully concur in the above statement.

**T. W. WEIMER,**

Head Miller for Latrobe Milling Co.

If you contemplate the purchase of any new machinery, write us, and we will try to do you some good whether you deal with us or not.

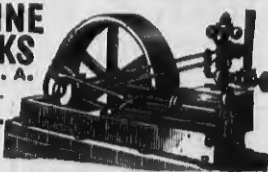
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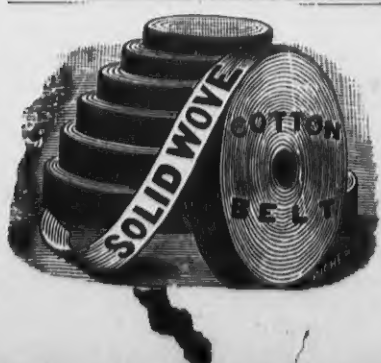
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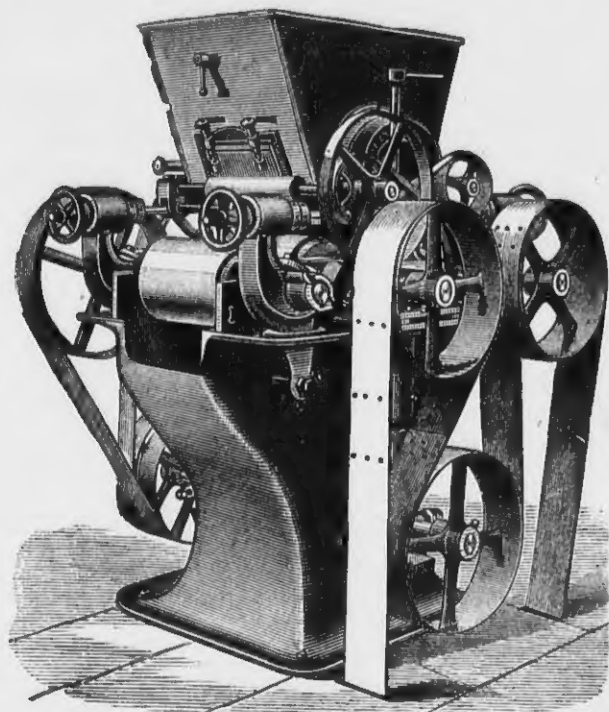
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Unexcelled for reducing Middlings to Flour.

Far ahead of Smooth Iron or Scratch Rolls and entirely superseding the use of Mill Stones for this purpose.

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MESSRS. E. P. ALLIS & Co., Milwaukee, Wis.

Gentlemen:—We are very much pleased with the whole eight set of Porcelain Rolls you put in our Mill. The two double sets sent us soon after starting up our mill last fall, we put in place of two run of stones for grinding our coarse Middlings.

We find the Flour from the Porcelain Rolls much more evenly granulated and much sharper and cleaner than that we got from the stones, besides the second or fine Middlings are much better, being almost entirely free from germs and not as specky.

Yours Truly,

KIDDER BROS.

Kings County Flour Mills, Brooklyn, N. Y., Aug. 15, 1882.

MESSRS. E. P. ALLIS & Co.

Gentlemen:—You ask how I like the Porcelain Rolls as compared with Mill Stones. I have been using the original Porcelain Gear Machines for five years and became convinced a long time ago that Mill Stones could not produce as satisfactory results.

I am now operating your Improved Machine of increased size with nice adjustments, working without noise with Gray's Patent Belt Drive. The Flour it produces is beautifully grainy and strong, and its capacity two or three times more than the old Gear Machine.

It runs splendidly, gives no trouble, consumes less power than Mill Stones, dispenses with costly stone dressing and for reducing middlings and soft branny residuums and tailings is unequalled by any Machine, iron or stone, at least this is my opinion after five years of practical experience.

Yours truly,

JOHN HARVEY,

Head Miller Kings Co. Mills, Brooklyn, N. Y.

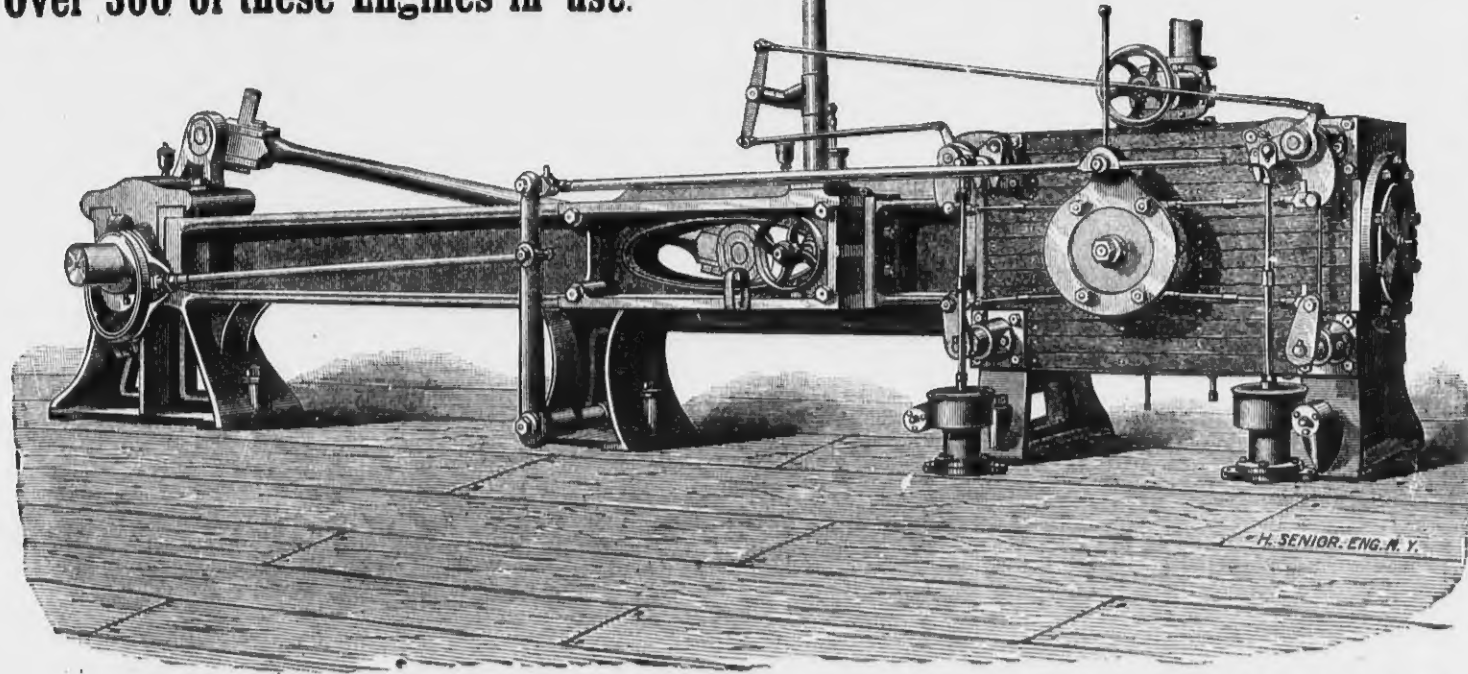
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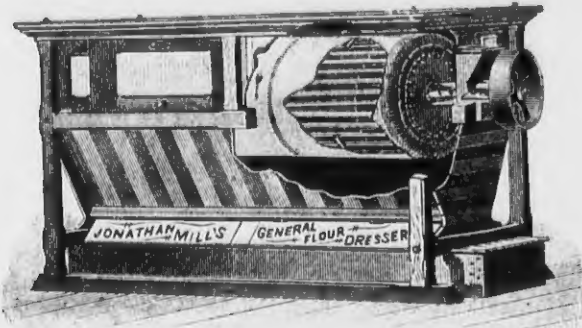
MILWAUKEE, WIS.

The following is a partial list of Flouring Mill owners who are using the Reynolds' Corliss Engines.

J. B. A. Kern.....	Milwaukee, Wis.	Albert Wehausen.....	Two Rivers, Wis.	L. H. Lanier & Son ..	Nashville, Tenn.
LaGrange Mill Co.....	Red Wing, Minn.	Green & Gold.....	Faribault, Minn.	Wells & Nieman.....	Schuyler, Neb.
New Era Mills.....	Milwaukee, Wis.	Meriden Mill Co.....	Meriden, Minn.	Grundy Centre Milling Co.....	Grundy Centre, Iowa.
Daisy Flour Mills.....	Milwaukee, Wis.	Townshend & Proctor.....	Stillwater, Minn.	B. D. Sprague.....	Rushford, Minn.
Winona Mill Co.....	Winona, Minn.	Sooy & Brinkman.....	Great Bend, Kansas.	The Eisenmeyer Co.....	Little Rock, Ark.
W. D. Washburn & Co.....	Anoka, Minn.	Frank Clark.....	Hamilton, Mo.	A. W. Ogilvie & Co.....	Montreal, Canada.
Archibald, Schurmeler & Smith.....	St. Paul, Minn.	N. J. Sisson.....	Mankato, Minn.	Geo. Urban & Son.....	Buffalo, N. Y.
White, Listman & Co.....	La Crosse, Wis.	Jas. Campbell.....	Mannannah, Minn.	A. A. Taylor.....	Toledo, O.
Milwaukee Milling Co.....	Milwaukee, Wis.	C. J. Coggin.....	Wauconda, Ill.	Pindell Bros. Co.....	Hannibal, Mo.
Stuart & Douglas.....	Chicago, Ill.	J. J. Wilson.....	Algona, Iowa.	Kehler Milling Co.....	East St. Louis, Ill.
Stillwater Milling Co.....	Stillwater, Minn.	Ames & Hurlbut.....	Hatchinson, Minn.	Walsh, DeRo & Co.....	Holland, Mich.
Otto Troost.....	Winona, Minn.	Lincoln Bros.....	Olivia, Minn.	Goodlander Mill and Elevator Co.....	Fort Scott, Kan.
E. T. Archibald & Co.....	Dundas, Minn.	Northey Bros.....	Columbus Junction, Iowa.	W. Seyk & Co.....	Keweenaw, Wis.
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Gardner & Mairs.....	Hastings, Minn.	David Kepford.....	Grundy Centre, Iowa.	Strong Bros.....	Graceville, Minn.
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*FINELY DESIGNED AND MECHANICALLY CONSTRUCTED;*

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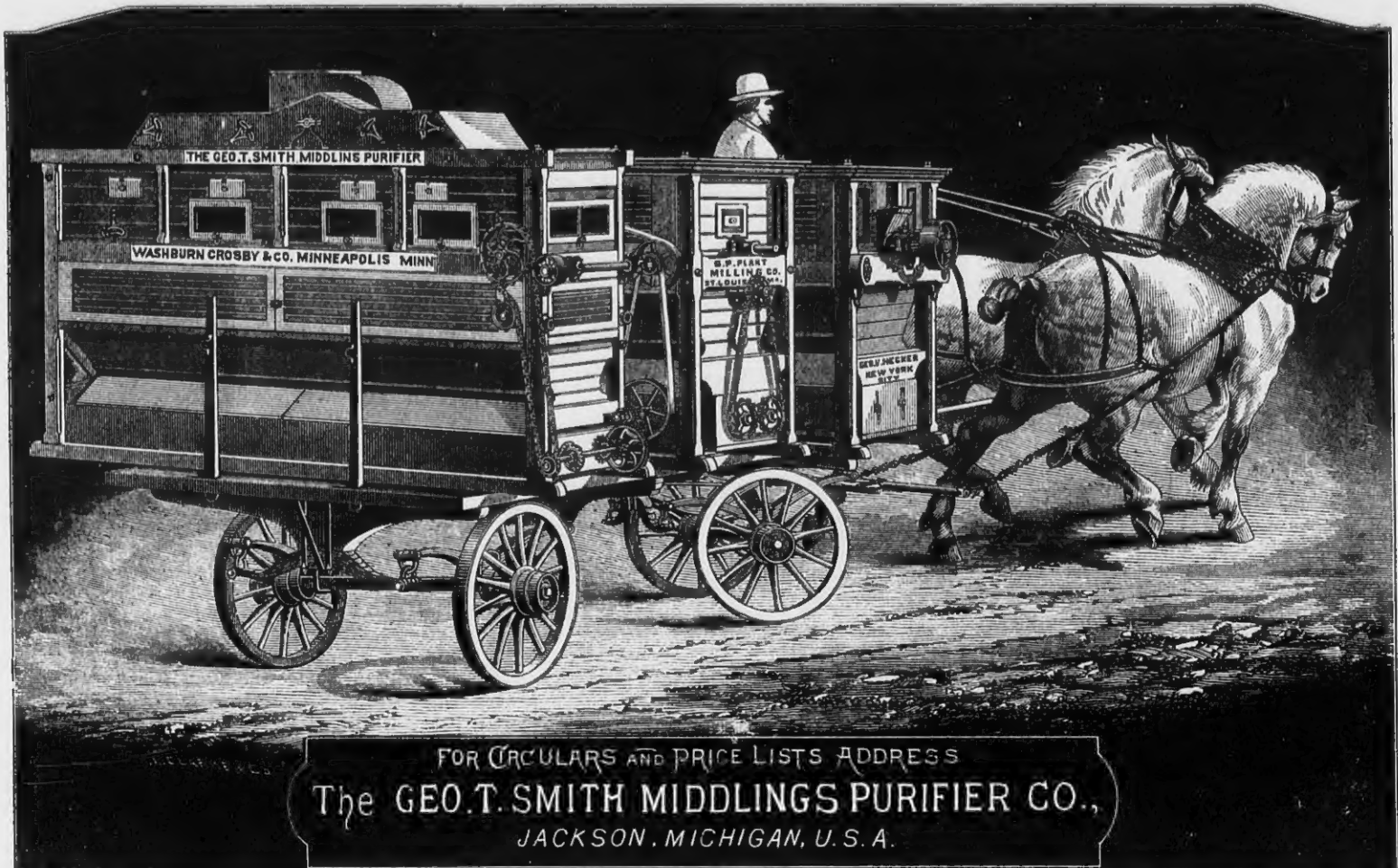
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 Will Grow Poor in the Business.  
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 GENTLEMEN:—Your favor of the 5th at hand and noted. We bought one No. 2 machine of you, we think in 1877; it has always done its work satisfactorily and continues to do so. We have not laid out one cent for repairs. If you make all your machines to last as well as ours, you will grow poor in the business.  
 Yours truly,  
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